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ESSAYS AND CASES.

ART. I.—*Facts and Observations on the Milk Sickness, or Sick Stomach, of Tennessee;* in a letter from DR. ALEXANDER MCCALL, to DR. SAMUEL BROWN. 1822.

DEAR SIR,—

In this essay, I shall attempt to sustain all the essential opinions and facts, contained in a thesis on milk-sickness, presented by me, to the Dean of the faculty at Philadelphia. Extracts from that thesis were published in the eighth number of the Philadelphia Journal, without my permission. The editor in his remarks, thinks the existence of such a distinct disease very improbable. I was aware when I presented that paper, it would appear in a very questionable shape, to any modern sympathies. But I also felt, that if the paper were at variance with the established axioms of the zealots in sympathy, I should view their censure of little importance. For to say the least against the wild extent, to which the recent symphathetic theory has been carried; it ought to be dispassionately revised and its more absurd parts disclaimed, before injured reason, too violently re-acting, shall at no distant time, overwhelm its beauties along with its deformities.

Medical theory is truly useful, only when its practical results are beneficial. To judge of these results, recourse must be had to the phenomena offered to clinical observers. With the view of throwing my mite into this department of our profession, I shall describe the disease, in Tennessee, usually called Milk Sickness.

Through the kindness of Dr. Sharp, I am enabled to detail several cases as they occurred in his practice. Some of the information I give, is derived from respectable citizens, who never suspected it was necessary to resort to scholastic disputations, either to prove or disprove the existence of self evident facts. The opinion of such men would be, that common sense forms a picture of passing events, which if not altered according to the taste of every froward critic, may possess lasting touches of intellectual excellence. That this belief is not without foundation, I hope can be clearly shown, by comparing the plain unvarnished statements herein detailed, with the vague and undefined hypothesis, which may be advanced in opposition.

As yet, the disease we are to consider, has not acquired a place in the systems of nosology. The 'sick stomach,' and 'puking fever,' the 'milk sickness,' and 'swamp sickness,' the 'tires,' 'slows,' and 'stiff joints,' are terms by which the complaint is designated among the commonality,—all expressing some diagnostic feature of this distressing affection.

Having premised these observations, our subject shall be treated in the manner following:

1st. Milk Sickness among inferior animals.

2. The same disease in the human family.

3. Topographical remarks.

4. Conjectures on its origin, and

5. Opinions on the structural and functional derangements, produced, constituting *ipse morbus.*

This disease originally makes its appearance amongst the inferior animals, in all its distinctive character. I will, therefore, first describe it in that state. Horned cattle, horses, deer, and sheep, are often the original subjects of the com-

plaint. If a cow is about to be severely attacked, she exhibits signs of languor and restlessness. If she can gratify her thirst for water, it hastens the approach of the constantly occuring symptoms—universal tremors and obstinate constipation of the intestines; her head is tossed from side to side in agony, and if she remain long in one posture, the muscles will not act so as to change that position. All the muscles indeed have a peculiar rigidity. The abdominal muscles are much contracted, the body affording a thin meagre aspect, especially in the more advanced stage of the disease. If milk be now drawn it emits a peculiar odour, known to those conversant with the complaint. It is said not to froth so much as good milk,when flowing from the teat into a vessel. The cream has a greenish hue, and the butter or cheese made from it, a highly pernicious quality. If the calf sucks this milk, it trembles and often quickly falls down and dies. By abstracting the milk, the animal is partially relieved. At length her breathing becomes very laborious and offensive to the by-standers if inhaled. On dissection the stench arising from the internal parts is hardly supportable. The several apartments of the stomach, and portions of the intestines, are found in a gangrenous or sphacelous state: their contents dry, hard, and mixed with dark colored matter. Other animals are similarly affected in the violent forms of the disease. And a happy thing it were, if the disease always assumed in these animals its aggravated shape. The people would then be thrown on their guard. But it often puts on a much more insidious aspect. The first suspicion of the cow being diseased is the nausea of those, who may for several days have used her milk. Perhaps the calf is by this time also affected. If, under these circumstances, the milk be regularly drawn, the cow may exhibit no marks of disease; eating and drinking as usual. But should she be made to undergo severe exercise, the complaint will appear, in its customary form, and perhaps terminate in death, or a slow recovery of ten or twelve months. Indeed, it is stated, that animals once under the influence of this poison, never are so completely relieved,

as not to feel its effects on any further violent exertion. At all stages of the complaint, ardent spirits and spirits of turpentine, have, when freely administered to cattle, had a salutary effect. After the alimentary canal is freely purged, the danger is slight, with proper care.

In Sequachee valley I saw some sheep laboring under this malady. They vomited without much apparent effort, and were also purged without having taken any medicine. They did not die. The owner, Billingsby, thought if his cattle had remained on the hills, they would not have sickened. The fatigue of driving them home and then getting water, produced the active form of the complaint.

In the dormant state of the disease the milk is no less pernicious, than in its more active form. That dogs, cats, hogs, turkeys, chickens, crows, and buzzards die by using the flesh of animals that perish under this unknown poison, the oaths of hundreds can attest.

Capt. Mills and others, informed me, that buzzards are rendered unable to fly, and that at one time on Hickerson's fork of Goose creek, sixty or seventy buzzards were found dead near the water.

Benjamin Seawell, Esq. authorised me to say, he had lost in the course of twenty years, 80 or 100 head of cattle and horses, by this poison. At one time he drove from the hills, about two miles distant from his house, fourteen steers: of which seven sickened and died at the first stream of water they crossed; two only could be driven home, and they, also, died soon afterwards. Mr. Seawell has seen dogs unable to get home after eating the flesh of dead animals, and if such dogs did not soon die, they were ever afterwards useless.—He also stated, that one of his neighbors removing his family to a distant part of the country, had six or seven horses to die on the road, with the common symptoms, although these horses were, on setting out, in apparent good health.

Mr. Elisha Henry, permits me to state on his authority, that whilst fox-hunting he found two of his dogs at a poisoned carcase. After running in the fox-chase to the first brook, and drinking, they both died.

Mrs. Britton informed me, that when her husband lay on his death bed, her milk cows ran out of the pasture by neglect. Having once had the milk sickness, she ordered her servant, before using the milk, to give some of it to a pig. The servant believing the milk good, eat some of it, and was immediately attacked; but recovered. At the sale of her husband's property, shortly afterwards, Mrs. B. purchased a mare, known to be affected by the disease, and this mare soon died. It being inconvenient to burn or bury the body, as is customary, a pen of wood was placed around; into this inclosure none but small animals could find their way. In a few days one racoon and two opossums, were found dead by the carcase.

So far as I am acquainted with milk sickness in the human family, it can be invariably traced, to the taking into the stomach the milk, butter, or flesh of animals which had been under a similar disease. There is a remarkable coincidence of symptoms presented under the operation of this peculiar poison in man and the lower animals. The violence of an attack is modified, by the quantity, and quality of the milk, butter, or flesh taken, and the time it remained on the stomach. The peculiar habits and constitution of every individual are also to be taken into consideration. Drunkards, and persons who have been several times under the influence of this poison, are liable to be effected by it. Adults are more severely attacked, in general, than children, and have a more tardy convalescence.

Not long since, I visited Goose creek, with the sole view of getting information on this subject. Unwilling that the facts connected with the disease in the human family, should rest on my own authority, alone, I applied to Dr. Sharp, an excellent practitioner of that part of the country, to give me an account of some cases that had occurred in his practice. Without a personal acquaintance, the Doctor has complied with my request. His cases are inserted at full length, and convey so correct a view of the disease, I shall not be under the necessity of saying much on that part of the subject.

DR. SHARP'S CASES.

"*Hartsville*, (*Tennessee*,) *November 24th*, 1822.

"SIR:

"I received your letters of the 2nd and 14th, requesting me to give you an account of the symptoms and treatment of the disease, commonly called milk sickness, as it exists within the bounds of my practice. I regret, that I am not able to do the subject that justice, which its importance, and the safety, and happiness of a considerable part of the inhabitants of this country demand.

However, it is, my opinion, that this disease is sui generis; and that the milk and flesh of affected animals, does produce a similar disease in other animals, using such milk and flesh; and as I am desirous that this subject should be fairly and impartially investigated by men of acknowledged talents, experience and science, I enclose a few cases—both of those successfully and unsuccessfully treated. The inhabitants of this section of country, have long been in the habit of keeping up such part of their stock, as they intended using for flesh diet, for some time before killing it. So that I am not able, to give a well marked case in the human subject, of the disease from eating the flesh of poisoned animals. I have, however, witnessed cases, which I believed were generated in that way. But I have known many horses and cattle die, quite fat, and a vast number of hogs and dogs die soon after eating their flesh, with a complaint like that under which the original animal perished.

There never has been an instance of this complaint, in any species of live stock, whilst confined to an old well cultivated pasture; nor have any persons ever been effected by using the milk or flesh of cattle thus pastured. But I have seen the disease make its appearance, in families, shortly after adding a piece of wood land to their old pastures, and disappear on separating the timbered land from the old fields.

As it respects the remote cause of this disease, however, I am not prepared to give such an opinion as should be relied on. I have searched in vain for any vegetable to which it

can be ascribed; and have sometimes thought it might be a mineral poison. Nevertheless the facts which I state are substantially true, and you are at liberty to use them as you think best.

Cases 1 & 2. Mrs. and Mr. McNeily were taken, the one on the 2nd. and the other on the 4th day of July, 1814. The symptoms of both cases were the same; and I will give them together. A burning sensation in the stomach was first felt. It was moderate for a day or two, and not attended with any vomiting or pain. On the third day after their respective attacks, each complained of severe burning at the stomach, and vomited frequently. Obstinate constipation of the bowels attended both cases. The pulse was small, thready, and a little accelerated; and the heat of the extremities considerably below the common temperature. The tongue was tremulous and covered with white mucus. Restlessness and great anxiety prevailed in the early stage of the attack.

A constant and ungovernable thirst, was present; and when water was drunk it only served to allay the thirst for a few moments; being quickly ejected and the pain, and vomiting increased. There was no pain in the region of the liver, the spine or the head.

The stomach and bowels seemed to be the seat of the disease, and great prostration of strength soon followed. These pains with occasional hiccuping continued with unabated violence, for about twenty-four hours, from the time the vomiting commenced. The vomiting and pain then began to subside, and the hiccup became frequent. Inspiration was performed slowly and with much difficulty, and as the patients became less restless, and the anxiety abated, stupor began to prevail in the same ratio, till they became completely insensible. The pulse intermitted, the eyes beceme fixed and the palpebræ remained open; with these symptoms, death closed the scene, in about sixty hours after each began to vomit. They were freely bled, and their stomachs attempted to be composed by mueilagenous drinks and anodynes, also by the application of blisters to the region of the epigastrium. In-

jections of an oleaginous as well as the more drastic kind were used, repeatedly, with no good effect. Blisters were also applied to the extremities with the view of equalizing the circulation: I lost four or five patients in that neighborhood, under the same complaint, produced as I believe by using the milk of diseased cattle. There were, however, others who recovered under the plan of treatment just detailed.

Case 3. Miss Betsey Reid was attacked, 16th May, 1816, with burning at the stomach, attend with slight pain, she vomited almost incessantly and her thirst was constant; pulse small, thready, and frequent. She was restless, with great anxiety of countenance, in the early part of the disease, and her bowels constipated. She complained, however, of little except the burning at her stomach. She obtained momentary relief by receiving bland fluids into the stomach, but they were soon rejected. The burning at the epigastrium soon became very distressing, and great prostration of strength followed. She was bled early, but the blood would not flow freely. The arterial action seemed very languid. Mucilaginous drinks, oily purgatives, and strong cathartic enemata, were administered; but the bowels could not be evacuated; the region of the stomach, and the extremities were blistered, without producing a mitigation of the symptoms. About thirty-six hours after she began to vomit, the puking and burning suddenly ceased, but the ease she experienced for a few hours, was only the precursor of dissolution. The difficulty of breathing increasing, soon showed the delusive prospects of a recovery. The eyes became fixed and the lids open. She groaned awfully for some time, and inspiration seemed to be performed without her being sensible of it, till death closed the scene.

The duration of the disease was only three days from the time she began to puke, though she had been unwell some days before.

Case 4. Mr. John Reid was attacked, 20th May, 1816, with slight uneasiness at his stomach, which continued to increase till the 23rd when I prescribed for him. All the symptoms

of the early stage of Miss Ried's case were present in a violent degree in his, with hiccup and cold extremities. All the remedies resorted to in her case, except bleeding, were used, without affording relief. The symptoms growing worse, I tried on the 26th the neutral salts to a considerable extent, but they were thrown from the stomach. I then commenced giving calomel, partly on account of its weight, all lighter substances being rejected from the stomach. I began by giving 10 grs. every fourth hour. This dose was continued till he took three portions. It was then increased to 20 grs. for twelve hours more; and then augmented to 40 grs. repeated at the same intervals, still using the cathartic injections. After giving the last named dose of the medicine four or five times, he began to evacuate small quantities of hardened fæces. The burning in the stomach began to subside; but he continued the last named dose one day longer, when his bowels were freely opened, and the vomiting entirely ceased, a little burning only remaining. A solution of salts, in an infusion of senna, was then substituted for the sub-mur. Hydrarg. with which a gentle catharsis was kept up a few days longer. The ptyalism was slight—the recovery speedy.

Case 5. Mrs. Jones was taken on the 26th of April, 1818, with slight burning at the stomach, which increased, for three days, when severe burning and some pain were felt. She often vomited, and had frequent alvine discharges, for two or three days more. Her bowels then became obstinately costive; her pulse was more open, and less corded, than is common in this complaint. The extremities were generally below the common temperature. She was restless, but as the disease advanced, she became rather stupid than otherwise. She complained of no other disagreeable symptoms.

Permit me here to observe, that in all cases which have come under my care, the matter thrown from the stomach was nearly transparent. Sometimes a little bilious, generally tasteless, and not acrid; but having a peculiar smell, a correct account of which I cannot give. I sometimes thought it faintly resembled the smell emited from the milk of cows,

that had fed on young culinary vegetables, or buds of trees. At other times it has brought to my recollection, the smell of young bruised garlic. This certainly is one of the most prominent diagnostics of the the disease.

I was called on the third day of her indisposition. I bled her and commenced giving 20 grs. calomel every fourth hour, using in the mean time cathartic injections. In about twenty four hours she passed dark scybalous fæces, mixed with blackish, bloody matter. After continuing the calomel twenty four hours the salts and senna were substituted. Some days having elapsed under this treatment, she began to convalesce, and recovered speedily. I was early convinced, that her sickness was produced by using poisonous milk; and communicated my opinion to her husband, who did not think it was the case, as his milk-cow (having but one) was in perfect health. I prevailed with him to quit milking the cow. After a few days she was taken sick and died with the same symptoms, that are usual under the operation of the supposed poison.

Case 6. There have been a number of cases of the chronic form of this disease. I will give you that of Mr. Marshall, who was taken ill in the year 1819, with slight burning at his stomach, and occasional puking; which, at intervals, continued for several months. After a few weeks he showed evident signs of general debility; with slight and irregular exacerbations of fever. He was also afflicted with trembling and difficulty of breathing, after taking exercise. There was a general rigidity of the whole system, particularly of the joints; his bowels were often constipated, and giddiness of the head was commonly present, a symptom which, also, belongs to the acute form of this disease. His countenance was of a greenish, sallow hue, and his eyes were languid. He was always dull and inanimate in performing any thing he had to do; and rather incoherent in conversation. These symptoms harrassed him for several months. He took alkalics and saline cathartics, which scarcely ever failed to relieve him. But a recurrence of the symptoms always took place,

till he refrained from the use of milk altogether; after which he was relieved by the above mentioned remedies. I am disposed to believe that this form of the disease, is only, or, at most, but little more than coeval with its cause, or in other words is kept up by the constant action of the remote cause. I have strong reason to believe, that milch cows, may labour for months together, under this disease, without showing evident signs of it. Young calves die with the usual train of symptoms, whilst their mothers appear in good health. And the flesh of such calves will communicate a similar disease to other animals feeding on it.

For the chronic form of the disease, the oily purgatives and sulphur, have long been used with much benefit; as also the pure carbonate of potash, which greatly soothes the burning sensation. You know from what has been said, that the burning and pain; vomiting and thirst; restlessness and anxiety; cold extremities and accelerated pulse; the constipated state of the bowels, and the peculiar smell before alluded to; taking into consideration the remote causes; are among the principle deagnostic of this disease. An opinion of its favorable or unfavorrble termination, may be formed, from the mildness, or violence, of the symptoms and the effects which the remedies have upon the system. One remark is worthy of being made, that I never failed of curing my patients, after their bowels had been freely and early evacuated.

I have selected these cases, of old date, merely because I had memoranda of them for my own use, as they occured in the course of my practice. There have been many such cases of more recent date. However, the citizens have been, for three or four years past, much more careful of their stock, and consequently the cases are fewer in number.

The mode of treatment, now followed by me, is such as stated in Mrs. Jones' case, with the addition of blistering the epigastric region, and varying the doses of medicine to suit circumstances. I find under this plan of practice, I can save six out of nine of my patients, whereas by the former method I lost nearly all. Bland drinks are of some service; but

since we see the bowels partake so much of the disease of the stomach, it is plain that purgatives are chiefly to be relied on.

The duration of the complaint in its acute form is various; it often runs its course in less than five days, but sometimes extends to ten or more. It occurs at any season of the year, but is most common during the months of March, April, May, September, October, and November.

I am sir with respect,

M. D. L. F. SHARP."

"DR. MCCALL."

To give several cases I had prepared, which are similar to those detailed by Dr. Sharp, would be useless, even if the limits of this paper would permit. I have the histories of a number of cases which occured in the state of North Carolina, between the years 1779 and 1800; but they differ in no material point from those of Dr. Sharp. I must not, however, omit to mention on the authority of Maj. Martin, the fact of a childs dying in consequence of sucking its diseased mother. The lady resided near Goose creek, and contracted the disease by using the milk of a cow labouring under a similar affection. The child survived the mother several days.

A case somewhat analogous is related in Coxe's Medical Museum, 3rd volume; by Dr. S. T. Barstow, May 27, 1806.

"Some time in the summer of 1801, the wife of Mr. Alfred Bremin, in the town of Baintrim, Luzern county, Pennsylvania, was bitten by a rattlesnake. She was then in fourth month of pregnancy. After some considerable degree of the common consequences of such an accident had occured; she at length recovered. At the full time of delivery she was safely put to bed. The child was apparently healthy; but immediately after allowing it to suck, it assumed the hues of a rattlesnake, swelled very much and soon died. She then procured a puppy which died in two days of the same symptoms, and in succession one puppy and three lambs shared the same fate. Another puppy was procured which discovered but little of the symtoms and did not die. In 1803 she had another child, and no disagreeable symptoms resulted from the use of her milk."

I once saw a child having its skin much discoloured with yellow and dark spots. Its parents stated, that about one year previous, it was bitten by a rattle snake. That a discolouration similar to that it then had, occured soon after it was bitten. That the spots had disappeared during the winter, and they supposed it to be restored to health. But when the season approached in which it was bitten, the skin again became discoloured, and its extremities swelled. The child died.

I will conclude this part of my subject by giving the certificates of John Miller and his son, of Goose creek in regard to the milk sickness.

"I have been in the habit," says the former, "of keeping up my stock for twenty years past. About four years ago my sheep were turned out of the pasture, and soon after seven or eight died. Not supposing they were poisoned, I did not burn their carcases, and my hogs eat of them. These hogs died and were destroyed, except one which I did not find in the lot. This body was found to be picked by the chickens which chickens, as I believe caused milk sickness in myself, my wife, and three children, by using them as diet. My reason for believing so, is, that we had the true milk sickness, and had eat no other fresh meat; and my son who eat none of the chickens, or soup, was not sick. My cattle had not been out of the old lot, and he as well as the rest of us used their milk. What, however, acted as convincing proof to my mind, was, that so long as we used chicken soup as diet, in our sickness, we all grew worse: till suspecting the fowls for being the cause, we abstained from using them. My wife died; and I still feel the complaint after taking exercise.

JOHN MILLER."

"Buzzards eating the diseased flesh often die and some of them lose the power of flying for some days. One of my dogs having partaken of diseased beef, run after a rabit across the field, and then fell down and died; another dog died in the same way, whilst in pursuit of a hog.

JOHN MILLER, JUN."

Whether or not Mr. Miller be right in his conjecture, of the cause of sickness in his family, one thing it seems is ascertained, that the poison can in three animals successfully generate disease, by only using the flesh of each one as it dies.

I will now offer some topographical remarks, on some of the districts, in which the disease is met with. The Goose creek tract is on the north side of the Cumberland river. At the distance of 10 or 15 miles from the river, a chain of highlands runs, separating the waters of the Cumberland, from those of Barren river in Kentucky. From this ridge appending hills set off at near right angles; those running south, dividing the branches of Goose creek towards their sources. Along these ridges animals contract the disease. The chain running between the upper and middle forks of Goose creek, rises in some places from two to three hundred feet above the level of the river. Of these hills the "Mill stone knob," is the most remarkable. From its summit a country beautifully variegated with hills and dales, in a high state of cultivation presents itself. The mill stone quarry whence it takes its name, is about two thirds of the distance from the base to the summit. Viewing the face of this quarry where it will be seen that only a few feet of rich mould, covers a flaky bed of slate, which last lies on the mill stone rock. When heat is applied to these mill stones, an oily substance exudes, in combination, with some sulphur. The general face of the country presents no appearances worthy of notice, more than the adjacient lands.

Without giving a particular description of them, I will mention several other places where the disease occurs. I have seen the disease with many of its peculiarities, in Stokes county, North Carolina, in the low lands of Yadkin river. It was there called the "River sickness," and could always be eradicated by cultivating the soil, as was amply proven on Kirby's and Poindexter's farms. This was within a mile of the place of my pativity; and these facts are among my earliest recollections. It was thought to be produced by what is commonly called wild parsnip roots, as many of those roots were exposed on the surface of the ground, by hogs turning

up the soil. A species of spider with its webs, adhering to the vegetables, was also supposed by some, to be the remote cause of the milk sickness.

On the little Yadken river, where there were iron works, it was by others, ascribed to the mineral exhalations raised by heat and subsiding on the vegetation. In the same state, it occurs in Burk county, and I believe in Guilford county. Also, in some parts of South Carolina and Georgia. I think, in some part of Dr. Rush's works, it is mentioned, that a disease had occured in one of the Southern states, from the use of vitiated milk. Linneus, in his tour through Lapland, discovered a plant which had been deleterious to horned cattle. But I have not his journal before me.

To return to our disease, it occurs both in the mountainous and flat lands of Kentucky; in the plains of Indiana, of Mississippi, of Missouri, of Illinois, Michigan, and especially in Ohio. In the state of Tennessee, it is not confined to Goose creek. In the year 1821, the Legislature of the state, passed an act, to have fences made round certain coves of the Cumberland mountain, in Franklin county: to prevent (as it reads) animals eating an unknown vegetable, thereby imparting to their milk and flesh qualities highly deleterious. The provisions of this act, specify the duties of the overseers of such fences &c. I am informed that the fence is now in good repair, twelve or fifteen miles along the base of the mountain. The disease is also met with in Smith county, and in Bedford county; on the waters of the French broad river, in East Tennessee; and near some of the branches of the rivers Emery, and Clynch. It is met with in Sequachee valley, Bledsoe county, where as I before observed, I have witnessed distressing cases of milk sickness. This valley is about seventy miles in length, and generally from five to fifteen miles in breadth, lying between the Cumberland mountains on one side, and the walnut ridge, its auxiliary chain, on the other side. From these two lofty mountains, this valley in the summer months, presents a delightful prospect of numerous and well improved farms—a little world in calm and lowly seclusion.

The atmosphere on these broad based and elevated mountains, is singularly pure and serene, and during the spring and summer months, the morning traveller arriving at the summits of these mountains, will, on viewing the foggy valley below, be impressed with the idea of an extended and fluctuating lake.

Passing, sometime since, through this valley, in company with my father, he informed me, that at an early period of the settlement of this country, when narrow paths only directed the footsteps of the anxious traveller, he unexpectedly came to the brink of what he supposed was a lake, as far as his eyes could see on either hand. The sun was shining, and the imitative waves rolling beneath in uncommon grandeur, made him conclude that he was far out of his way; till the green tree tops, projecting through, disclosed the deception. In going down to the valley, the wild, broken precipices of each mountain, present a bold and striking picture of those dreadful convulsions, which, in times long past, effected their separation and formed this garden of the hills. Yet even in this delightful valley, animal life is annoyed by the disease under consideration. Not a neighbor, friend, or relative, falls under its mysterious power, without an anxious excitement to know something more of this enemy to our peace and health. Who that has any humanity will longer withhold his aid in searching out its hidden cause? But inquiries to be efficient, should be properly directed and applied. By proper investigation I have no doubt the remote cause of milk sickness can be detected. Although, perhaps, like many causes doing injury to the animal system, its detection might be of little practical benefit.

It will be readily supposed, that various conjectures have been made on the probable cause of milk sickness. If not instructive, it may be amusing to take a brief view of some of these notions. Many suppose it is the effect of one of the mineral poisons. Mountainous districts where minerals abound are, sometimes, the fruitful source of milk sickness. Many mineral substances are known to have peculiar effects on some of the secretory functions. It is also thought that

arsenic in a vaporised state might be the poison that subsides on vegetables, and this opinion is said to be supported by the fact, or opinion that animals only contract disease whilst dew is on the herbage. Inferring perhaps from this, that the sun has the effect of dissipating such effluvia, or that, in the absence of light and heat, vegetable life has the power of decomposing the atmosphere in contact with its leaves, by which a poisonous substance is produced on the surface of the leaves, which, could not have been generated in a vitiated air without vegetable existence, nor by the vegetative powers, had not an impure atmosphere been presented. Were it a mineral exhalation, the state of the atmosphere would have some influence over it. Rain and snow would arrest it, and to say the least, it would require a higher degree of temperature than that of our winter days, to vaporise any mineral. If it be a mineral exhalation why does it not appear in all places where there are large quantities of iron, sulphur, copper, arsenic and lead, in different states of combination? Why would not the exhalation be wafted across a river, or why will it not arise in a piece of ground where the old vegetation has been destroyed? In grass lots there is sufficiency of herbage for it to fall on, if such exhalation exists. From all the facts given in Dr. Sharp's paper, and from my own observations, I must for the present come to the conclusion, that some vegetable is the remote cause. It is not impossible that two or more vegetables taken into the stomach may jointly produce effects, which singly used, could not have occured. I design making a regular set of experiments with the flesh and milk of poisoned animals. Much information might perhaps be got, by examining the stomachs of animals on the first appearance of the complaint. The substance from the human stomach should also be examined; and the milk supposed to be poisoned ought to be accurately analysed.

Editorial Note.—The Author of the forgoing paper has several pages on the modus operandi, of the supposed poison which produce Milk sickness, and on the pathological condition of the system in that malady; they are ingenious speculations, but as they embrace no experiments nor autopsic examinations, and as our object is to record facts, we shall omit their publication.

Within the last ten years, many papers have been published in the Journals of America, on this disease; which, still remains of a doubtful character, in its ætiology, nosological relations, and therapeutics. We have not, ourselves, had an opportunity of witnessing the disease, though according to the reports of some of our professional friends, residing not far from Cincinnati, in various directions, it is with them not an uncommon malady. It seems indeed to belong to the *country*, and to be endemic in particular districts only.

Our first knowledge of this complaint dates back as far as the year 1809. In 1810, the Editor of this Journal appended to a small pamphlet, entitled, "Notices Concerning Cincinnati," (a few copies of which were printed for distribution,) a short, but as far as we know the first, notice of this malady. As the facts which it sets forth, make a part of the history of the disease, and are not within the reach of the Profession; we have deemed it not improper to transfer them to the pages of the Western Journal.

"New Disease.

"In the spring of 1809, Dr. Barbee, of Virginia, on returning from a visit to the Madriver county in this state, gave me some information concerning a new and formidable disease which had appeared among the settlers of that tract. Since that time, I have been able to collect serveral additional facts respecting it, from different persons, more especially Mr. William Snodgrass, and Mr. John M'Kag, two intelligent and respectable inhabitants of that country, who have several times experienced the disease in their persons and families. A summary of the whole, is here given, that physicians may determine how far it deserves the appellation of a new disease.

It almost invariably commences with general weakness and lassitude, which increase in the most gradual manner. About the same time, or soon after, a dull pain, or rather soreness, begins to affect the calves of the legs, occasionally extending up to the thighs. The

appetite becomes rather impaired, and in some cases nearly suspended; sensations of a disagreeable kind affecting the stomach; upon taking a little food, however, a greater disposition for it is generated, and more agreeable feelings are introduced throughout the whole system. Intestinal constipation, in this, as in the subsequent periods of the disease, exists in a very high degree. A strong propensity to sleep occurs, and according to Dr. Barbee, the pulse is "full, frequent, round, and *somewhat* tense, but regular." During this stage, exercise of any kind is highly ditrimental, and if persisted in, soon inducing loathing and nausea at the stomach. If the patient repose, upon first experiencing these symptoms, they generally cease, and he is allowed a longer exemption from the *vomiting* that awaits him. Sooner or later, however, that symptom almost invariably succeeds the predisposition we have described, and either proves fatal in one, two, three or more days, or leaves the patient in a most exhausted state, from which he recovers only to sustain, at no distant period, a repetition of the same attack.

The matter ejected is sometimes bilious, but much oftener sour, and so acrid, that its action on the throat, in one case, (which proved fatal) was likened to that of boiling water. Towards the close of mortal cases, it is occasionally very dark colored, so that it has been compared to that very convenient and fashionable object of simlitude —coffee grounds. At this time the intestinal constipation is very great. Mr. Snodgrass knew one patient in whom it continued for nine days, throughout which he took no food whatever, and vomited during six of them. After such an attack, the propensity of it is destroyed, and an uncommon degree of watchfulness is produced. The patient remains languid, and his face and person generally become rather tumid. His skin is cool, palish, and frequently affected with clamminess. He has a disagreeable burning sensation in his stomach, and hot eructations are very troublesome. The thirst is considerable. The breath is peculiarly disgusting, even loathsome. The appetite is generally poor; and the inclination to costivness remains. These symptoms often continue for several months, during which the patient experiences frequent returns of the vomiting. But at length, more especially upon the approach of winter, they gradually wear away, leaving the patient considerably worse than they found him, and liable to a fresh attack the ensuing summer.

Nothing like *regular* periodical exascerbations is observable in this disease; no chillines occurs; the color of the skin and eyes does not deviate widely from that of health, and gives no striking indication of bile; there is no pain in the region of the liver, nor in the shoulder; it does not terminate in dropsy; nor are there any symptoms which bespeak it a disguised or anomalous intermittent. It however prevails (though not exclusively) in aguish situations, and intermitting diseases are thought to have declined since its appearance.

It affects all ages, conditions, and both sexes, indiscriminately; except probably very young children. They, however, are not wholly exempt from it. Emigrants are not peculiarly liable to it. It was first observed in the summer of 1806, and is thought annually to extend its geographical range, and to become more intense. It sometimes commences in July or before, but oftener in August, and continues till the approach of winter, when it generally but not always subsides.

The cure of this disease seems hitherto to have been left chiefly to the people, who have not yet discovered any certain method. Purging was a remedy that naturally suggested itself; and by some it has been thought very serviceable, more especially when effected by aloes; but others assert that they have frequently known a cathartic to increase the vomiting, and therefore rely more on enemata. All agree however, that the intestinal obstructions are to be overcome; and that the less the means made use of, affect the stomach, the better. Vomits evidently do harm. Blisters to the gasiric region are considered the most efficient remedy. Tonics have been used, but no great benefit appeared to arise from them. Wine and salted meats, however, have appeared to do good, and are relished beyond any thing else. Indeed, eating a little frequenly, whether an inclination exist or not, has been found a good palliative. It relieves the stomach from the gnawing which so perpetually exists. Alkaline lye has been used in one case: it gave some tempoary relief, but not more than almost any other substance which might be received into the stomach. Bleeding has occusionally been resorted to, but with doubtful advantage. Ardent spirits appears to render the disease worse: it is not, however, much sought after, all inclination for it, generally being destroyed. Tea and coffee, also, with several other articles of diet, which were agreeable before the disease, are in many cases disliked for a long time after.

The disease is unequivocally observed to affect four domestic animals; the horse, the cow, the sheep, and the dog. It is often fatal to the two former; but not so fatal to the latter. It as frequently attacks horses in the winter as summer, and sometimes them in 24 hours.

It prevails chiefly in the neighborhood of Staunton on the Great Miami, and in the country south of Madriver, between Dayton and Springfield. In those tracts, ponds and marshes occasionally occur, more especially in the former. The soil and water are calcarous. The timber generally oak."

ART. II.—*History of a successful case of Casarean Operation.*—By JOHN L. RICHMOND, M. D. of Newton, Ohio.

On the 22d of April 1827, I was called to visit a Miss E. C. in labour; on my arrival at the house, I found she had been in labour about 30 hours. Two midwives had been called, but neither of them could give any account of the case, except that "she had fits and the pains did no good."

On examination, I found that the os externum, had suffered no dilatation, and there was no fœtal tumour in the pelvis, except when the pain was on, when there was a kind of pressing down of the uterus and the contents of the pelvis. The uterus presented a smooth tumour towards the superior extremity of the vagina, which seemed only to be felt through the anterior part of the vagina, and the anterior part appeared to form an acute angle with the posterior, immediately in the hollow of the sacrum, and a little posterior to the tumour.

She lay, by spells, comparatively easy; when her pains came on, they continued for a short space of time, nearly regular or natural, but in twenty or thirty seconds were transfered to the stomach, and immediately terminated in general convulsions, which continued from three to five minutes, and were succeeded by alarming faintings, which lasted from ten to twenty minutes. The system was much exhausted, the pulse depressed, and not the least advantage had yet resulted from all she had suffered.

My first object was, to prevent the convulsions and to recruit the system; for which purpose I gave laudanum and sulphuric ether, and applied flannel wet with hot spirits to the feet. These measures produced considerable mitigation of the convulsions, but the fainting increased. I had no recourse to cordials, for these could not be obtained. I was seven miles from home, and had but few medicines with me. I spent four hours in fruitless attempts, either to recruit my patient or to ascertain the exact condition of the mother, or the presentation of the child. The vagina seemed a kind of

sack, the extremity of which could easily be reached with the finger, but nothing like a uterus, could be felt, except a tumour above, which was felt through the vagina; under these circumstances, finding my patient fast sinking, I requested advice, which, however, could not be obtained, on account of high water in the Little Miami and the darkness of the night.

I informed the patient and her friends, of the only means by which I could conceive of relief; this was at once consented to as affording some hopes of life.

After doing all in my power for her preservation, and feeling myself entirely in the dark as to her situation, and finding that whatever was done, must be done soon, and feeling a deep and solemn sense of my responsibility, with only a case of common pocket instruments, about one o'clock at night, I commenced the CAESAREAN SECTION. Here I must take the liberty to digress from my subject, and relate the condition of the house, which was made of logs that were green, and put together not more than a week before. The crevices were not chinked, there was no chimney, nor chamber floor. The night was stormy and windy, insomuch, that the assitants had to hold blankets to keep the candles from being blown out. Under these circumstances it is hard to conceive of the state of my feelings, when I was convinced that the patient must die, or the operation be performed.

I commenced the operation, by making an incision through the integuments, down to the *linea alba* from the umbilicus, to within an inch and a half of the pubis. I then made a short incision through the tendon, about one third of the way from the lower extremity of the other, and introducing my finger, I found that the omentum was much in the way, as she was very fat. I introduced the blade of a crooked pair of scissors, and crowding the omentum up with my finger, cut first up and then down. During this part of the operation, the hæmorrhage was very trifling. I presume not exceeding four or five ounces.

As soon as the tension of the abdominal muscles was taken off, the convulsions subsided, and the patient became com-

posed and tranquil. The uterus then presenting, I proceeded to divide it in the same manner as I had done the *linea alba.* I made the incision from as low down as I could, to near the fundus uteri; the incision passed immediately over the placenta. This incision produced considerable hæmorrhage, which however, soon partially subsided and I, then, divided the placenta, by making a small incision in it, and then lacerating it, which I thought would occasion less hemorrhage than to cut the whole of it. I then suffered all the blood to escape that I could, while the whole cavity of the abdomen was filled; and wiped away all I could, before trying to remove the child.

The child lay with the back presenting to the incision, the head resting on the superior strait of the pelvis; the uterus and placenta being thus divided, the contraction of the former were rapid, and the latter soon became entirely detached. As soon as the gush of blood partially subsided, I commenced my efforts to remove the child; but as it was uncommonly large, and the mother very fat, and having no assistance, I found this part of my operation more difficult than I had anticipated. My first endeavor was to raise the child sufficiently towards the stomach, to bring the head from under the pubis; but this I was unable to do, by any force which appeared to me safe to exert. I then made several vain attempts to raise the breech. After which I endeavored to pass my hand around the child, and get hold of the feet, but this the patient could not endure; and thinking the danger of the mother very great; and believing or supposing, that the child was dead from the detachment of the placenta; and considering, at all events, that a childless mother, was better than a motherless child, I determined to do all I could for the preservation of the mother. Accordingly I made a transverse incision across the back of the foetus, near the upper lumbar vertebræ, and the muscles of the back being divided, it formed an angle instead of a curve, by which means I was enabled, easily to extract it. The placenta, being entirely detached from the uterus, was at once removed, and the blood carefully wiped out of the uterus and all the surrounding parts properly cleansed.

I now determined to make, if possible, some discovery in relation to the *orificium uteri.* I accordingly passed my hand into the uterus; and, by examining carefully, I found an apperture which, to the touch, from within, did not seem to bear any resemblance to a natural orifice. I introduced the finger of the other hand, into the vagina and could not bring them into contact with each other—there seemed to be a kind of tube, leading from the uterus, to within about three fourths of an inch of the *meatus urinarius* into which I could not pass my finger at the upper extremity, to any distance, and not at all below. I then dressed the wound in the common manner, with sutures and adhesive straps, leaving about two inches of the lower extremity open.

She now lay perfectly easy and went to sleep. I kept her in one position for four days, keeping the bowels open with saline purges and injections. The loehial discharge commenced in about eight hours, and continued for five days; some discharge also occured from the open part of the incision. That part of the wound which was closed, adhered by the first intention. I suffered her to take no nourishment but weak gruel. On the seventh day, I closed the lower part of the wound; but finding, on the twelfth, that an accumulation had taken place in the cavity of the abdomen, I opened a small orifice from which a large quantity of black very offensive blood and water, was discharged. I then introduced a female catheter, and with a pint syringe, threw in three pints of warm water with a small quantity of soap in it, and drew it back with the syringe, after the manner of a stomach pump; this I repeated six successive days, when the water which was injected ceased to be coloured and the orifice was suffered to close. The patient never complained of pain during the whole course of the cure. She commenced work in twenty-four days from the operation, and in the fifth week walked a mile and back the same day.

One circumstance I cannot forbear relating. As I was syringing out the abdomen, as above mentioned, a neighboring woman, standing by my side, said to her what makes you laugh? to which she replied, because it feels so queer. I looked to her face and she was laughing.

I have made a recent examination of this patient, *per-vaginam*, and the condition of the vagina remains as above described, only it is now more shallow than it was when the uterus was raised into the abdomen; the whole depth of the vagina is now only two thirds of a fingers length, the orifice, or abnomral *os tincæ*, would not be discovered by the most minute examiner, who was not apprised of its situation. The anterior coat of the vagina now feels like a kind of septum, passing obliquely upward from before backward, leaving, I think, about one and a half inches between it and the forchet. I should think, if it were possible, that it is an unnaturally situated hymen. Here is as much room for others to theorize on the physiology of conception as for me. She has been married since and lived two years with a husband, during which time she tells me that she suffered great inconvenience on account of the shallowness of the vagina, but no conception has taken place. She suffers no inconvenience from the abdominal cicatrix, it being perfectly firm.

Newton, Hamilton county, Ohio, Feb. 1830.

ART. III.—*A case illustrative of the Effects of the Colchicum Autumnale.*—By Dr. R. J. BUCKNER, of Brown Co. Ohio.

During the summer of 1828, in the vicinity of Georgetown, Brown county, Ohio, those who resided near the watercourses, in the neighborhood of mill ponds, or on low marshy grounds, were very generally attacked with remittent bilious fever, which, with a few exceptions, was of a mild character, yielding readily to the usual mode of treatment.

Towards the close of the month of August, it became dry, and warm, about which time, fluxes and dysenteric fever, became very prevalent, assumed rather an inflammatory character, and when not met, at an early stage, with bold and energetic remedies, became protracted; with something of a typhoid type. In the month of September, the weather was very changeable with frequent showers of rain and

cold nights; about which time appeared a few cases of acute Rheumatism highly inflammatory, to one of which I was called in the person of Mr. E. Thompson.

The patient was near the age of fifty; inured to hard labor about a mill, and had a few days previously, been engaged in repairing his mill dam, and plunged frequently in the water when very warm, and perspiring freely:—to which causes I attributed his disease. He was a man of temperate habits, in regard to spiritous liquor, but indulged freely in animal diet; his temperament rather bilious.

When I first saw him, he was evidently laboring under all the symptoms of an ardent fever; skin hot and parched—face highly flushed—pain in the head and back—pulse full hard and burning—thirst intolerable—tongue foul, inclining to a brown appearance in the centre, edges very red: he complained of much pain in the lower extremities, particularly the right knee and ankle, which joints were considerably swollen—his right arm was also considerably affected. On the slightest touch, the pain was excruciating and seemed confined to the faciæ of the muscles and the tendinous envelopes of the joints. I considered his case a well marked, acute Rheumatism. I had him raised up in bed and extracted 20 ʒ of blood, which produced slight nausea and a tendency to syncope. The blood exhibited strong marks of inflamation. I then administered a free cathartic of calomel and jalap, which was followed after an interval of about six hours, by sulph. magnes. ʒjj, tart. antimo. grs. iv, dissolved in half a pint of warm water—a wine glass full was taken every hour, which produced copious alvine evacuations of very dark, bilious matter.

In the course of fifteen or eighteen hours, I visited him. Very little abatement of the pain, except of the head and back, which was removed. Pulse still full and rather hard—skin hot and dry;—bled him again to 16ʒ sitting erect in bed—pulse became soft—slight moisture appeared on the skin. I now applied blisters to his wrists and knees, and left Dover's powder to be taken every three hours, in a little warm tea, to promote diaphoresis.

Next morning found him much better. Pain not so excruciating—perspired,freely during the latter part of the night—for several days but little alteration in the symptoms. The disease them assuming the sub-acute form, I ordered the blisters to be reapplied to the parts—Dover's powder continued —very little fever now, except at night, when the evening paroxysms would return, regularly and severely, which prevented his sleeping: indeed he enjoyed no sleep, except when he could be prevailed on to take the Dover's powder, in sufficiently large doses to produce diaphoresis, which always mitigated the pain and procured him some repose; but from the nausea they produced, his protracted sufferings, &c. he became extremely averse to taking any more medicine. I had urged upon him, for several days previously, the absolute necessity of taking mercury in some form, with a view to mercurialize the system, but this he utterly refused, being unhappily under the influence of the most violent prejudices against the use of mercury in any form whatever. The disease absolutely resisted the mode of treatment which had hitherto been pursued, and continued its march unrestrained, harassing him with lancinating pains and sleepless nights, until he became very much reduced, when it began to exhibit considerable tendency to metastasis—the stomach, diaphragm, intestines, and respiratory muscles, all showing, successively, strong symptoms of the disease, I became alarmed for the result. I requested him to send for a consulting physician,in hopes a consultation might induce him to take medicine, and submit to what I supposed to be the proper mode of treatment. Having at length consented to this proposal, an aged and respectable gentleman of the medical profession was consulted, who advised by all means to administer calomel opium, and squills, so as to mercurialize the system without delay, and to continue the blisters, diaphoretics, &c. to all which the patient obstinately objected. Such was the strength of his preconceived objections against all mercurial preparations: but he observed—to use his own words—"If I can get some kind of drops to ease these pains, I will try them." It then occured to me to try the tinct. colchici. I

suggested it to the consulting physician, who replied, that under all circumstances, he would recommend its trial. I had some of the tincture prepared according to the following formula—℞. "Pulv. colchici 2℥, Alcohol 4℥, let it stand for 10 days then filter through paper." Of this tinct. I ordered about a drachm three times a day. The second potion produced slight vertigo, and burning heat of the fauces and stomach, followed by a pretty free discharge of *Saliva.* His pain was, for a short time, rather increased;—as he expressed it, "I am pained all over." The third or fourth dose produced complete *Ptyalism*—a gentle moisture of the skin, and perfect relief from pain.

The following day I visited him again, to encourage him to persevere in taking the medicine, intending if permitted, to give it a fair trial, and found him as just stated—skin soft—free from pain and spitting copiously—the secretions generally established, particularly those of the kidneys—skin, and as I have stated, salivary glands. As soon as I entered his room, he said to me—"You have deceived me at last—you have *salivated* me." I assured him I had not given him any medicine that was calculated to produce that effect:—he replied, "you need not deny it—I don't care—I am evidently better—I could have slept all night, if I had not been disturbed by the spitting—I think I must have spit half a gallon since last evening." I was very much surprised at this account as well as what I witnessed myself, for in ten years of pretty extensive practice, but few cases of ptyalism from the exhibition of mercury, have come under my observation, in which the saliva flowed more freely.

It will here be recollected, that for several days prior to the use of the colchicum, she had used nothing but Dover's powder, and an occasional purgative of neutral salts or oil; that he had taken but a single dose of calomel, and that combined with jalap, followed and briskly worked off by salts; so that I am led to attribute the ptyalism solely to the *Colchicum.* Besides the mercurial fœtor of the breath was not at all perceivable. I continued the colchicum for eight or ten days, during which time, the patient convalesced rapidly—the pain

having left him in twenty-four hours after he commenced using it—the swelling of the joints gradually disappeared, leaving him perfectly free from every symptom of the disease.

His debility and emaciation being very great, I now prescribed as tonics, the sulph. quinæ, wine, and a generous diet, —under this course, he soon regained his usual health and strength, and has not since experienced any returning symptoms of the disease.

Pleased with the effects of the Colchicum in this case, I have since tried it in a number of diseases—particularly Rheumatism, Sciatiea, Dropsy, Paralysis, &c. and in many of these cases, with manifest good effect; but in none was its action so immediately and completely successful, as in that of Thompson: and it is due to candour to observe, that, in a few instances, I have given it, without discovering that it produced any effect whatever. Whether, in those cases where it failed, it was owing to the disease not being of the class which it is best calculated to relieve, or whether the stage of the disease—time and other circumstances not being propitious to its operation—it failed of success, I leave to be decided by future observation.

I have given the above detailed report of the character of the disease of Thompson—the stage and circumstances, (comprising the previous treatment,) under which the Colchicum was administered, and I think we may safely conclude that in that particular case, it was the efficient remedial agent.

I have no where seen its peculiar action on the salivary glands, stated as one of its effects. But in my own trials, where it was decidedly beneficial, it has invariably produced the following effects:—An increased flow of saliva, in a greater or less degree, reduced action of the heart and arteries; and a decided mitigation of pain.

From this little discovery, and others of a more important character, in the science of medicine, which are daily making, I am led to concur with the illustrious Dr. Armstrong, in a prediction, which I cannot forbear quoting in his own language. "I have no doubt," says he, "that some great discov-

ery will be made in Therapeuties, by which the treatment of most if not all febrile diseases will be made much more simple and successful; for we frequently now employ only bleeding, purging and other ordinary means—not because they are the best which can be *discovered*, but merely because they are the best which we *know*, in the present state of our imperfect knowledge.

"From the great power which narcotics possess over the nervous and thence over the vascular system, it is highly probable, that some agents of *that* tribe may yet be found by which the dominion of medicine may be much extended. Whether *Colchicum* be one of these, the experience of others, hereafter, must determine; but I have seen enough of its effects, to be convinced that few articles of materia medica are more deserving of consideration."

The medical accounts of this drug, are so exceedingly defective, that a great deal remains to be known; not as to its practical operation, only; but as to the best season for gathering, and the best mode of preparing it for use.

If the few desultory remarks offered in this humble paper, should be the means of calling the attention of the Faculty, to the further investigation of this subject, and if that investigation shall happily result in establishing the salutary efficacy of this powerful agent in the control of one or more, of the many diseases which afflict the human family, my fondest, and most sanguine expectations will be realized.

December, 1829.

ART. IV.—*Observations on the Ætiology of Bilious Fever.*—By DR. JOHN COOK BENNETT, of McConnelsville, Ohio.

On the ætiology of autumnal fever, there remain some differences of opinion. I have no doubt, that marsh miasmata or putrid vegetable exhalations, are a fruitful cause of fever; but there seems to me much reason for believing that the putrid exhalation from dead aquatic animalculi, constitute a cause equally powerful. I propose to state a few facts which seem to me to go to the support of both opinions.

The water from the Zanesville canal dam, was let out, about the 20th of August, 1829. A short time before this, the mills of Mr. Granger, situated upon this canal, were destroyed by fire, and near 5000 bushels of grain, some of it partially burned, fell into the canal, and became very putrid. The water discharged from the canal, arrived at this place, [McConnelsville,] the next day. It was so offensive that horses would not drink it, and it could be distinctly smelt for several rods from the Muskingum. At the time the water arrived here, the wind blew from the west, and it continued in that direction several days. From the 24th to the 27th there were 10 new cases of fever, in the town, under the care of Dr. Barker, and about as many more the week following. Those under the care of the other physicians of the town, at the same time would add largely to the number. All these cases of bilious fever occured in the direction of the wind, from the offensive water. The inhabitants on the west side of the river, were very healthy at this time. But to return to Zanesville. Those who lived above the dam, of which I have spoken, or immediately adjacent to it, where the water was backed up, became sickly upon letting off the water, so as to expose a portion of the grain and other decayed vegetable matter; but upon shutting the gates and filling the dam again, with back water so as to cover those decaying substances, they recovered their health. These facts were communicated to me by Dr. S. A. Barker, a respectable physician of this place. They are interesting in several particulars.

1st. The putrid exhalations produced fever in about forty-eight hours after persons were exposed to their influence.

2nd. Those who lived about the dam, or back water, were healthy as long as the canal and dam were full; but as soon as it was emptied by letting off the water, they became sickly.

3rd. Those in this place, who were not in the direction of the wind, were quite healthy, while those who inhaled the effluvia and those upon whom the wind blew, were the subjects of the disease. Another fact.

I have been informed of another fact by a respectable traveller, that upon letting the water into the Ohio and Erie

canal, this season, at and near Newark, the town and country were partially inundated—the cellars filled with water &c. in consequence of the banks of the canal being too porous to retain the water in its proper channel. The leaking of the canal banks produced a great quantity of stagnant water in its vicinity, and its usual concomitant followed—an unusual number of cases of bilious fever.

Now the question which naturally suggests itself is this—What was the real cause of the sickness in the two cases related? I shall consider them under separate heads.

1st. The cause of the sickness at McConnelsville and Zanesville. This was evidently the putrid exhalations from the grain and other vegetable substances in the canal and dam. The water of this manufacturing canal, was so completely saturated with the miasmata, from the grain, that it remained sufficiently contaminated and offensive to produce fever when it arrived at McConnelsville—a distance of 27 miles. Now water being pure and incapable of generating disease of itself by any process whatsoever, the disease alluded to must have been produced by the putrefaction and decomposition of the grain, at Grainger's mills, which as I said fell into the canal at the burning of the Mill. This is a clear and satisfactory case of the production of bilious fever by miasmata or putrid vegetable exhalations.

2nd. The sickness at Newark, I am disposed to ascribe this to the death and decomposition of *animalculi*, rather than the decomposition of vegetable substances. Indeed, it seems to me, that this kind of decomposition as a source of autumnal fever, has been too much overlooked. Is not the green matter which covers the surface of stagnant water, the offspring of the putrefaction of animalculi? And may not the Hydrocyanic acid in a gaseous state, which Dr. Hempstead supposes to be the deleterious agent in the production of Autumnal fever, be thus generated? It has long been conjectured that epidemic fevers are produced by living animalculi floating in the air, but their death and decomposition in stagnant water, and the exhalation of poisonous gases from this source has, as far as I know, not been recognized, as a cause of our Autumnal fevers.

December 1829.

ART. V.—*Cases illustrating the effects of the Roller-Bandage.*—By JOSEPH K. SPARKS, M. D. of Cincinnati.

CASE I.

On the 24th of February, 1827, Amzi Leach came to my office, having a bad wound on his left hand. He said that fifteen days previous to that time, he fired off a gun that was overcharged, and the barrel bursted near the breech, which lacerated the palm of his left hand, and denuded the thumb-bone.

He was then in a boat on the Mississippi river. A physician was called to see him, who amputated the thumb and dressed the wound, which was not dressed again till I did it, fifteen days after. When he came to me the day above named, the wound extended from the flexor tendons of the ring finger, half round the first joint of the middle finger, and to the first joint of the fore finger, from thence over the stump of the thumb and round on the back of the hand to the extensor tendon of the middle finger. The muscle of the middle finger had sloughed off from the first to the second joint, on the side that looks towards the ring finger. The middle finger was swoln and œdematose, the back part and the side which looks towards the fore finger, being the only parts through which the blood could circulate to the end of the finger. The fore finger was likewise swollen, but no part had sloughed off, except at the first joint, towards the palm of the hand. This wound had been without dressing so long, and had suppurated so much, that it was offensive to the people as they passed him in the streets.

I washed it with soap suds and spread dry lint over the whole suppurating surface, and applied the roller-bandage, with a view to increase the circulation of blood in the œdematose parts.

The next day, 25th February, 1827, when I took the dressing off, the middle finger had a more healthy appearance, and the blood seemed to circulate in every part where there was any muscle, and the rest of the wound looked proportion-

ably well. I cleansed it with the soap suds and applied the bandage in the same way.

26th. Dressed it and applied the lint and bandage.

27th. I called in three neighboring physicians—they all said that it would be better to amputate the fore and middle fingers, but it might be deferred longer, as the inflammation had subsided. They likewise recommended the yeast poultice to be applied to the wound—as I had none at hand I dressed it with the lint and bandage again.

28th. The wound looked very well, and I presumed that it could not improve faster; as the suppuration was perfectly healthy and granulations had commenced very beautifully. I therefore continued the same application.

March 1st. I saw that the flexor sublimus perforatus, extending to the middle finger was dead, which in a few days sloughed off.

I continued the lint and the bandage till the 10th of March, at which time the wound was nearly filled with granulations and covered for the most part with new skin. At this time he did me the favor to abscond without giving me further trouble, and I do not know the final termination of the case.

Having seen a man's hand lacerated by the bursting of a gun barrel when I was a student of medicine, and having witnessed the treatment, which was the application of poultices, and several strata of cloths round the part, I am prepared to say, without being prejudiced against the former treatment, or enthusiastically in favor of the latter; that the bandage and the dry lint were the best applications, in two respects:—

First, the bandage supported the swollen parts so as to promote the circulation.

Secondly, it did not produce any unnecessary heat or suppuration.

Case II.

Jacob Varley, about twenty years old, came to my office, 30th December, 1828, with his hand very much inflamed and exceedingly painful. Some four or five days previous he had received a slight hurt on the end of his little finger while

at work in a pork house. The weather being very cold, it inflamed immediately.

When he came to me the entire hand was very much swelled, and the pain acute. I bathed it in warm water half an hour or more, gently pressing it with my hand, till the part was considerably softened; I then applied the roller bandage, beginning at the end of the fingers, and continuing it to the shoulder.

I left him about an hour after dark. Next morning, 31st December, the little finger from just below the second joint to the end, was gangreous. I then put on a blistering plaster extending over the palm and back of the hand, and applied the bandage over it, from the ends of the fingers to the shoulders as I had done before.

January 1, 1829. The little finger had mortified as far as it was gangrenous the day before. I dressed the part that was blistered and applied the bandage with a corn meal poultice over it.

2nd The gangrene appeared to be arrested, except a small place in the palm of the hand about the size of a pea, three fourths of an inch from the first joint of the little finger. I then dissected the little finger at the first joint which was a little below the part that was mortified. As the inflammation subsided, I dressed the hand like other blistered surfaces, and kept the integuments in contact over the dissected part. I continued the dressing daily, till 10th January, at which time it was so well as to require my attention no longer.

His hand got well and he worked on a farm through the spring; I have seen him twice since, and it is perfectly sound.

Before I saw J. V. he had poulticed his hand, but was not benefited at all by the application. I am certain that much good was done in the first instance by bathing it in warm water, and gently pressing the swelled part till it softened, when the pain abated considerably. But I feel safe in saying, that, had it not been for the use of the bandage, that gangrene and mortification would have extended into the hand.

January 15, 1830.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

ART. VI.—*Malaria*; *an Essay on the production and propogation of this poison, and on the nature and localities of the places by which it is produced: with an enumeration of the diseases caused by it, and of the means of preventing or diminishing them, both in naval and military service.*—By JOHN MACCULLOCH. M. D., F. R. S., &c. &c. Physician in ordinary to His Royal Highness Prince Leopold of Saxe Coburg. *First American Edition, Philadelphia*, 1829. 8 *vo. pp.* 219.

BY A CORRESPONDENT.

It has long been the subject of familiar observation, not only to physicians, but to the vulgar, and to the most unenlightened nations, that a production of marshes, under certain circumstances, and at peculiar seasons of the year, was the cause of intermittent and other fevers. Later and more accurate observation has shown that dysentery and cholera, with a great variety of diseases which have generally been attributed to other causes, proceed from the same source.

This mysterious poison which is so delicate as to elude the observation of our senses, and even the more accurate investigations of the chemist, is called by the British physicians, Marsh Miasma, and by the Italians, Malaria. To the greater part of the physicians and inhabitants of this country, this subject is one of great practical importance. To our merchants and travellers it is, from the extension of our commercial relations, daily acquiring additional importance. As members of the great family of mankind, we cannot be indifferent to a subject which involves so great an amount of suffering disease and death; while to men of science and literature, it will derive additional interest from the fact that this invisible agent is laying waste, and threatening entirely to depopulate some of the most interesting scenes of classic association.

Dr. Macculloch, the author of the work at the head of this article, has bestowed upon this subject a degree of research

and observation that reflect upon him the highest credit, and has traced the agency of malaria in the production of disease, to cases in which its influence has been suspected by very few, even of the Medical profession.

To many of our readers his speculations will appear visionary, yet the great importance of the subject will secure his opinions a candid investigation, as the interesting and important facts which he has collected will secure to the work a very extensive circulation.

Malaria has been estimated to produce one half the mortality of the human race; and even in Great Britain, Dr. M. supposes nine-tenths of the febrile diseases which terminate fatally, are fevers of this class, which have been too often confounded with typhus.

"The value of life, of survivorship, the average chance of approaching to the proverbial limit of threescore and ten, is the measure of the salubrity of a country, and that salubrity depends mainly on the presence or absence, the range or the limitation, of Malaria. We may take the average of life among ourselves, in round numbers, at fifty, with sufficient safety for this purpose. In Holland it is twenty-five; the half of human life is cut off at one blow, and the executioner is Malaria; for there is no other cause for the superior mortality of that country. But there are districts in France where it is but twenty-two, twenty, eighteen; so little is the chance of life; while all the instruments by which Death executes his office, are here superseded by one, by that one which renders all others unnecessary, which has monopolized the functions of the whole dark catalogue—Malaria. Let us turn to Italy: the fairest portions of this fair land are a prey to this invisible enemy, its fragrant breezes are poison, the dews of its summer evenings are death. The banks of its refreshing streams, its rich and flowery meadows, the borders of its glassy lakes, the luxuriant plains of its over flowing agriculture, the valley where its aromatic shrubs regale the eye and perfume the air, these are the chosen seats of this plague, the throne of Malaria. Death here walks hand and hand with the sources of life, sparing none: the labourer reaps his harvest but to die, or he wanders amid the luxuriance of vegetation and wealth, the ghost of man, a sufferer from his cradle to his impending grave; aged even in childhood, and laying down in misery that life which was but one disease. He is even driven from some of the richest portions of this fertile yet unhappy country; and the traveller contemplates at a distance deserts, but deserts of vegetable wealth, which man dares not approach, —or he dies."

Rome is threatened with entire depopulation.

"Such also is Sicily, such Sardinia, and such is classic Greece. To live a living death, to be cut off from more than half or even that life, to be placed in the midst of wealth and enjoyment, yet not to enjoy, such is the fate of man in the lands of Europe where Malaria holds its chief seat; while in the tropical regions, it is to fall by thousands and tens of thousands, the summer harvest of death walking hand in hand with that of the vegetable world."

It is in the operations of war, however, that we are to look for the most obvious effects of this destructive agent, which has annihilated armies with the secrecy, certainty, and despatch of the Destroying Angel. Every circumstance connected with the habits, occupation and mode of life of soldiers, exposes him in a peculiar degree to the pernicious influence of malaria; and hence

"If the sword has slain its thousands, the Malaria has slain its tens of thousands. It is disease, not the field of action, which digs the grave of armies; it is Malaria by which the burning spirit, fitted for better things, is quenched, and in the coward's bed of death. This is the Destroying Angel, the real pestilence which walks at noon day; and to which all the other causes of mortality are but as feeble auxiliaries in the work of destruction."

Our Author speaks of the habit of denying the existence of danger, as a curious moral feature, characteristic of those who live in these unhealthy districts. This remark certainly does not apply to this country. The inhabitants of malarious regions being generally very willing to acknowledge the evil to its utmost extent.

Chapter II.

Nature of the evidences of the production of malaria.—The power of marshes to produce remittent and intermittent fevers is generally admitted, but Dr. Macculloch intends to show that what is popularly called a marsh is not necessary for the production of malaria, and that its causes exist under numerous circumstances not at all suspected, in our own country, and at our very doors. In effecting this, we are certainly disposed to indulge him in resorting "to proofs of some delicacy," and to admit that if "exceptions do occur" they

should not be allowed in so mysterious a subject to prevent a candid examination of his conclusions, when so many exceptions occur in relation to those causes of malaria, which are universally admitted.

It is a very serious error, but not a very common one in this country, to judge of the presence of malaria, solely by the occurrence of regular intermittent fever.

"The practitioners acquainted with hot countries know indeed perfectly well, that the common fever of summer and autumn, be its names what they may, is equally the produce and proof of Malaria; as this is also known to all physicians of reading, who have not had the advantage of similar experience. To them it is equally known, that dysentery is produced by the same causes, while, at present, I need not extend this enumeration.

"But this is as far from being true of the mass of domestic, untravelled, and imperfectly educated practioners, as it is of the mass of the people themselves. With these, the fevers in question are most frequently called typhus, and, further, generally considered as contagious." * * * * * "While the term bilious fever, sometimes used by others, conveys ideas no further definite, particularly as the cause is generally sought in heat, cold, fatigue, fruit even in plums and cheries specifically, and while the autumnal dysentery is attributed to the same fanciful causes.

"The real conclusion to be drawn is, that whenever remitting fevers, or fevers of whatever nature that are not contagious, as well as dysenteries (to say nothing at present of other diseases less commonly attributed to this cause,) are produced, the proof of summer Malaria is as complete as if the same soils had, in spring, produced ague; or, generally, that as the same soil, in different seasons, or under different circumstances, produces both kinds of disease, or the different species of one genus, while both are mutually interchangeable, so the occurrence of any species at any season, is a proof that the situation is productive of Malaria."

Having set aside this fallacy, he decides, "that wherever remittent fevers, or fevers of whatever kind that are not contagious, or dysenteries are produced, the proof of malaria, is as complete as if the same soil had produced ague," because the same soils, in different seasons, or under different circumstances, produce all these varieties of disease. A more delicate proof of the presence of malaria is to be found, in the fact that certain situations as compared with other situations in the same vicinity, may be said "in general terms to be un-

healthy." Thus it is notorious that many families have lost, or after long suffering have recovered their health, by a simple change of residence. Dr. Macculloch very justly censures, with much severity, the loose reasoning, and phraseology of those physicians who content themselves with referring the sickness in question, to obvious physical facts, such as badness of the water, or a clay soil. A clay soil will be found to be productive of disease, only as it is favorable to standing water; and a sandy and gravel soil to be healthy, only as their loose texture admits of its ready escape.

In considering this kind of "unhealthiness," as affording evidence of the production of malaria, in places little or not at at suspected, the sickness, on rigid examination, will be found to consist in the occurence of summer and autumnal disease, or in the frequent recurrence of petty fevers, or a general febrile state that is frequently referred to dyspepsia. It will also be found, that dysentery or diarrhœa is one of the prevailing ailments, or perhaps cholera, combined with the different varieties of neuralgia.

"Even if all these should be absent, or if from fortitude, carelessness, poverty, or from weariness or contempt of physic, persons who are thus habitual and hopeless sufferers, should not give a physician all the opportunities of minute observation which he might desire, he will be a bad observer if he does not discover in the sallow complexions, the langour, the irritable tempers, or the melancholy character of individuals thus unfortunately situated, that they are suffering under fixed derangements of the larger glandular viscera; often of the liver, and perhaps much more frequently of the spleen. And should he have those opportunities of examination which severe diseases of this nature afford, he will be enabled to convince himself that this very species of disease, the noted produce of the places that notoriously generate Malaria in the hotter climates, is also habitual to the similar situations in our own country, if under a less severe character; and that it is one of the leading causes of that indefinable ill health peculiar to the situation of the patient, as it is, apparently, the great cause of so many distressing, nervous, and dyspeptic symptoms.

It is further to be remarked, that while the occasional production of intermittent fevers in these situations, demonstrates the existence of malaria, it at the same time shows,

that all these diseases proceed from the same cause. Novel as these views may appear to many of our readers, they are confirmed by the fact that many analogous diseases do actually appear as the sequel of autumnal fevers, and that during the sickly season, a similar state of ill health, is common in malarious countries, even among those who escape the prevailing epidemic.

Dr. Macculloch thinks that another test of the existence of the poison, is to be found in the susceptibility of those persons who have once had remittent fever, to a new attack, on exposure to the slightest application of malaria. We agree with our author that this susceptibility sometimes continues for a considerable time—in other words it continues as long as that enlargement of the viscera, and that impaired condition of the secreting surfaces, which follow remittent fevers, continue.

"It is notorious, that those who have suffered severely and repeatedly from intermittent, or, sometimes, from remittent, become, and even through a long course of years, so highly susceptible, that the slightest exciting cause, and, among others the slightest application of Malaria, is capable of reproducing the disease. That this is true of the host of sufferers at Walcheren, needs not be said; while it has been also found common among those who have suffered from the intermittents of China or of Canada; as indeed of many other countries, among which Moldavia is said to be pre-eminent. Hence, therefore, where we find that such a person has experienced a renewal of his disorder, from communication with a place otherwise suspicious from its nature, it offers as convincing proof as can be desired, that there Malaria is produced or producible."

Such our author informs us was the susceptibility of an acquaintance, that the disease was repeatedly recalled, by merely visiting a pond dedicated to a few gold fishes. But if the slightest exciting cause will reproduce intermittents, why suspect malaria? Simple exposure to a damp atmosphere, excess in eating, or violent exercise in the sun, will do the same, during the winter, or in situations where the presence of malaria cannot be suspected. Spring intermittents we think generally arise from the predisposition acquired during the preceding autumn, and not from exposure to fresh sources

of malaria—at least we do not recollect to have met with an instance of their recurrence either in spring, or the early part of summer which could not be traced to a previous attack of autumnal fever.

But as the opinions of Dr. Macculloch are entitled to the highest consideration, we will present his views, and leave others to make their own observations.

"The obscure cases in question are very principally such, that while prevention is generally easy, either by amending an existing bad situation, or avoiding an incurable one, it seems especially called for, from their number, as well as from the number and the inveteracy of the diseases thus generated. Let me urge what I said before, that Malaria produces, in itself, a far wider mass of human misery than any other cause of disease; as for the world at large, it is also the cause of far more than half the mortality of mankind. And that many of the diseases which it produces are almost beyond the power of physic, while marked by a resistance which often terminates but with life, is an additional reason for making every exertion to avoid what we know not how to cure. And further, if I am myself fully convinced by wide observation, it would also not be difficult to prove, that this very persistence, the cause of so much misery, is most generally the result, not of a fixed disease, of organic affections, as commonly supposed, or of inveterate habit, but of incautious or unknown, and repeated or continued exposure to the re-exciting cause, Malaria.

"Hence, if the diseases from this cause are incurable in the places where they arose, as is notorious in every marked situation of this nature throughout Europe, so it is from repeated or continued exposures to Malaria that they are renewed, even under change of place; and from ignorance, generally, of the situations, too often unsuspected, which are productive of poison. He who labours under an incurable intermittent in England, is perhaps sent to Italy or France for change of air and a cure; as thousands are daily sent, for other reasons, to the same countries. The physician forgets, and the patient knows not, that he is flying Scylla to rush into Charybdis, and too often confirms the disease or meets the death which he meant to avoid; while he who hopes to leave consumption behind him at Montpellier, leaves it indeed in the grave where the fever has superseded his more tardy enemy; as he who flies from poverty and England to the banks of the Rhone or the Loire, finds too late that he has bartered his health for the expected ease and happiness of France."

Chapter III.

On the soils and situations which most commonly produce malaria.—Since the evil consequences of fresh water marshes are universally admitted, it is unnecessary to enter into the consideration of them. There is, however, a very popular impression, that salt water marshes are innocent in this respect. Proofs of their deleterious nature are however so abundant, throughout the whole of the Southern part of Europe, on the shores of the Atlantic, and Mediteranean, and on the Asiatic, and American continents, that it is unnecessary to particularize them. Indeed the fact has been generally admitted by those acquainted with the experiments of Sir John Pringle, shewing that small quantities of salt accelerate the progress of putrefaction; and upon this principle, it has been asserted by many of the French and Italian writers, that salt marshes are more pernicious than fresh.

The popular error, that the pernicious quality of such soils is remedied when washed by the sea, Dr. Macculloch refutes by referring to some very unhealthy situations in England, which are covered by the tide twice a day; while the palm and mangrove rivers of tropical climates, in innumerable instances, may be adduced in evidence to the same effect.

Forests in tropical climates are supposed to be fruitful sources of malaria.

"The power of woods in generating Malaria is not less notorious than that of marshes, at least in the tropical climates. To repeat all that has been written respecting this particular class of soils would be to compile without purpose. The jungles and the jungle fevers of India are as familiar; even to the multitude, as the ditches aad fevers of Walcheren. The jungle, it must however be remarked, is a low dense brushwood, or a thicket of reeds and grass; and it is often, consequently, as the residence of moisture and decaying vegetation, analagous to a marsh. Yet the production of fever does not seem limited to this particular species of woods in India; since, according to the testimony of Buchanan, confirmed by that of others in several parts of the East, fevers are produced among the opener and larger forests, in Mysore and elsewhere, and are in fact the usual concomitants of all woods.

"Yet in this matter, and even in those climates, there appears some irregularity, as far at least as we can judge from the reports of ordi-

nary travellers; since it is said that, in Cambodia, Cochinchina, and Siam, there are extensive tracts of wood where fevers are unknown. As to Africa, the same rule seems to apply, as far as it is known to us; and the same also seems true of the warmer regions of America, however the opener and drier pine forests may be exempt."

The pine woods of our Southern states, if the test "of general ill health," laid down by our author be admitted, are very generally productive of miasmata; since sallow anasarcous countenances, and bloated abdomens are proverbial characteristics of their inhabitants, by which they may be recognised, as readily as the Esquimaux by the peculiarities of his structure.

Although woods in temperate climates are viewed with less suspicion, yet Dr. Macculloch mentions several instances not only in England, but also in Wales, where it is difficult to trace intermittent or remittent fevers to any other source, than "plashy woods and coppices, and that, even when these are situated upon the steep declivities of hills."

The experience of the inhabitants of the newly settled parts of the United States, we think, would be rather in favor of the healthfulness of woods. Newly cleared lands indeed are proverbially unhealthy, especially when surrounding hills or forests prevent free ventilation; and no doubt situations may be found in the very centre of forests, unprotected by the shade, from which exhalations will arise, the more deleterious, from the want of ventilation. But with the knowledge we already possess upon this subject, it might be supposed, independent of observation, that forests would be useful both by protecting the marshes from the rays of the sun, and from the well known influence of trees in arresting the progress of malaria, by preventing its circulation. Taking advantage of this circumstance, many of the Southern planters, by protecting the woods about their residence, enjoy an exemption from autumnal fevers, in the vicinity of very extensive marshes and mill-ponds.

Rice grounds, as the cultivation of this plant requires a succession of inundation and drainage, must be very deleterious. In support of this presumption, Dr. Macculloch refers

to the great mortality which prevails among those who cultivate rice in Italy, Greece, and France, among whom, he states "on good authority," that the term of life does not exceed forty, and that the population is decimated every year. To this it may be added that the health of Savannah, since the abandonment of rice for the dry culture system, has been progressively improving, notwithstanding the abundant sources of malaria afforded by the ditches which drain these lands.

It has been said, however, that rice grounds do not produce fevers in China or India.

"In the mean time, we may at least be allowed to doubt; while if it should prove true, it is like so many other anomalies in this case, incapable of explanation for want of more accurate knowledge of the necessary facts.

"It will be difficult, however, to admit the truth of an opinion which considers the rice grounds of Bengal or similar districts as not productive of remittent fever, until it is explained whence arise those fevers which so often range in India, and of which the year 1762 produced so destructive an instance; since it was computed that, in this one season, the mortality included 30,000 natives and 800 Europeans in Bengal alone. Inundations of the Ganges may be allowed their full share, and so in many situations, may jungles; but if we exclude the rice cultivation, we shall scarcely find sufficient causes for a mortality of this nature, of which that country furnishes and has furnished at all times, abundant examples."

It might be supposed, indeed, that the extreme temperance of the inhabitants of these countries, with their great prudence in adapting their habits and modes of life to the climate in which they live, would generally protect them; so that the great mortality which occasionally prevails must be considered as fully sustaining the opinion of their insalubrity.

Chapter IV.

Of soils and other situations less suspected of Malaria.—Dr. Macculloch, in speaking of the exent of soil necessasy for the production of malaria, supposes that as malaria, when wafted to the distance of several miles, and consequently when very much diluted, will produce disease, so a very small extent of marsh, if the system be brought within the reach of its influence, or "a single blade of grass acting on water may be

as efficacious as an acre;" supposing of course that it is actually applied to that part of the body which can suffer from its action.

In connection with this subject, he supposes that there is so far an analogy between malaria and contagion, that with the former, as with the latter, the quality rather than the quantity of the agent, modifies the character of the disease. Thus "a minutes exposure, a single inspiration" is sometimes sufficient to produce the most fatal diseases; and in addition, we may remark that in some instances where the generation of malaria is so abundant that scarcely an individual escapes, these diseases assume the mild remittent or intermittent type; while under other circumstances, when the miasmata are so diluted that sporadic cases of fever only appear, these few cases are accompanied with symptoms of the greatest malignity. The subject must be acknowledged, however, to be attended with many inherent difficulties; and among others, so much of the character of the fever depends upon the influence of exciting causes, that it requires very minute observation, with extended opportunities, to say how much may be attributed to malaria.

Does the nature of the plants; their being ligneous or herbaceous; their chemical composition; the facility of their decomposition; or the peculiar offensive gas which escapes from some of them during this process; produce any modification of malaria? As nothing but speculation has hitherto been advanced upon this subject, which is devoid neither of interest nor practical importance, it remains to be elucidated by future observation. Supposing, however, that vegetables do not under ordinary circumstances produce malaria until their peculiar character is destroyed, we of course are disposed to decide in the negative.

As to the source of malaria.

"But to pass from this; the essential character of all marshes and swamps, as far as we can decide, is, that the land should be partially inundated, that it should be dry in some places and wet in others, or that pools and dry spots should be intermixed, or that it should be boggy and soft from the mixtures of earths and decayed vegetables

with water, or that it should be subject to peculiar alternations of moisture and dryness, sometimes amounting to absolute inundation in the first case.

"Now, in all this we see no apparent reason why the water of the marsh should produce Malaria, because we do not find that water produces it in other situations; and as little have we reason to suppose it the produce of earth and water mixed, or of clay or mud; since neither is it caused by such mixture where vegetation, or vegetable matter is not present. Nor is it produced by the mixture of decomposed and subcarbonized vegetable matter and water; since it is notoriously not produced by dead peaty bogs, or by peat which carries no vegetation. The presence of vegetables or vegetable matter, therefore, in some mode or form, is necessary: while the conclusion has sometimes been, that it is a production formed between the living vegetable and water; more generally, that it is generated between that and the latter in some stage intermediate between life and absolute decomposition; or, lastly, that it is the consequence of absolute putrefaction."

The simple putrefaction of vegetables, under peculiar circumstances, will certainly produce disease of a very malignant character; but it is not so well established that it is the general, or even a frequent source of malaria. The probability is that the cause is to be looked for in what remains of the vegetable when it is so far decomposed as to form a part of the soil, constituting what is generally called vegetable mould.

Dr. Macculloch proceeds next to the examination of those situations which, not being marshes, are not generally suspected of producing malaria. The popular opinion in England, that Peat bogs are innocent is founded on imperfect observation. They do produce it in Holland and other countries; and that they do not in Great Britain is owing to accidental circumstances. The fact is that in warm climates peat is not produced, while in high latitudes malaria is seldom sufficiently active to produce disease.

There can be no doubt, Dr. Macculloch thinks, that the rushy pools and petty swamps, so common in high moorlands, produce malaria, from the fact of the occurence of intermittents in Wales, and in other situations elevated a thousand feet above the level of the sea. The minute marshy spots

met with on commons and roadsides are also far from being innocent; although their limited range of action may prevent suspicion, unless when habitations are situated very near them.

"In how far meadows which cannot be called marshy are capable of producing Malaria, is an intricate and entangled question; partly on account of the difficulty of exactly limiting the term meadow, or defining the degree of moisture, and partly because they are so often intersected by drains and ditches, which may sometimes be the generative sources, instead of the including land itself. I cannot hope to clear this question by an exact definition; but taking the term in its usual lax sense, it appears unquestionable that there are many tracts of meadow, or of alluvial land, not marshy, and often not intersected by ditches, at least in a conspicuous manner, which are the sources of Malaria all over Europe."

The same fact, Dr. Macculloch thinks, occurs in innumerable instances on the continent of Europe, where no marshes are present, nothing but that drying of moist meadows, (whether previously inundated, or otherwise made wet in winter) which takes place during the summer heat.

"And it will be found, in confirmation of this, in France and in Flanders, and probably far wider than I now know, that where tracts bordering the same river, or in any other respect exactly similar, whether in soil or situation, are respectively, cultivated with grain or kept in grass, there the production of fever or of Malaria is correspondent; occupying the uncultivated lands so as to produce what is popularly called the *fevre du pays*, as if it was a necessary part of the order of things, and flying from those that have been ploughed for a grain cultivation.

"How the two facts, relatively, that is, a grain cultivation or pasture, act in this case, it ought to be almost superfluous to say; since the former husbandry will be commonly adopted whenever the meadow can be maintained in such a state of drainage as to fit it for the plough, while a condemnation to pasture is also, in itself, almost evidence of wet land. But I must here also add, what I am obliged to remark elsewhere, that the mere act of ploughing, with the crops and processes which follow it, produce a very different effect as to the natural moisture of the soil, from that which must occur under a dense covering of luxuriant grass."

Dr. Macculloch is disposed to extend the same principle, "to upland meadows, and even to perpetual pastures on the declivities of hills, to all meadow and pasture land, which is

retentive of moisture, or which the winter leave a poachy and soft in the spring."

On this point, although not prepared to speak positively, we think that luxuriant vegetation acts as a preventative against malaria, and that if meadows do produce malaria, it will generally be found under circumstances similar to the following; either the vegetation has been removed by mowing or pasturage, or destroyed by the extreme heat and drought of summer, so as to leave the soil exposed to the direct rays of the sun; or that they are liable to be overflowed and covered with the soil from the adjacent high grounds, so as to expose a surface somewhat analogous to a marsh.

Dr. Macculloch, next refers to running streams and rivers. We would expect a very general admission of the salubrity of the rapid streams of mountainous countries. Yet a very common opinion to the contrary is prevalent in France; and Volney states that every river in America he visited, whether rapid or stagnant, produces malaria and fevers. It would be superfluous to say, that with regard to this country, M. Volney was much mistaken. The most rapid streams, however, may be occasionally retarded in their course, and have extensive tracts of alluvial land on their banks, and hence produce bowel complaints or other autumnal diseases, even in very elevated regions. As they approach a more level country, and especially, when subject to alterations in altitude from floods or the tide, their banks present a surface precisely analogous to a marsh, in all those circumstances which, so far as we are able to judge, produce malaria.

Dr. Macculloch is a most decided enemy to those streams, artificial lakes, canals, and ponds, which are introduced into pleasure grounds for the sake of ornament. "In one instance, the recurrence of an intermittent fever was caused repeatedly in a susceptible subject, by merely entering a garden containing a pond dedicated to gold fishes and river gods."—Such "delicate susceptibilities," if it were not for the inconvenience attending them, would be very important to our pioneer settlers, in selecting their habitations.

Canals, from their banks possessing all the properties of a marsh, and from the numerous receptacles for stagnant water, which are frequently to be found near them, will often produce malaria. In support of this opinion, are adduced the canals of France, Holland and Batavia. We may add also the experience of New York and Pennsylvania.* It is not improbable again under other circumstances, that by draining low marshy lands, they may have a beneficial influence. This subject, at this time, derives peculiar importance in the United States, from the great attention paid to Internal Improvement; and is perhaps not unworthy of being taken into the estimate, in deciding upon the expediency of different systems of improvement.

Ditches and drains, Dr. M. thinks, may be the source of the unhealthiness of certain low districts. In Walcheren, where the soil is dry and sandy, and in the Campagna di Roma, where the soil is also dry, the malaria is attributed to this cause.

Although a general opinion of the insalubrity of the drains of towns and houses prevails, yet there is a want of absolute evidence on the subject. Perhaps the history of the epidemics of our Eastern cities will afford sufficient proof of their deleterious nature. It is a question of some importance whether the fevers thus produced are typhus. The evidence adduced by both parties, (for every thing is fair in Medical Politics,) proves both sides of the question. Dr. M. offers one which he thinks decisive.

"This is, that in the Salpetriere at Paris, intermittents were common among the residents confined there, and that the Malaria having been suspected to enter the house from the drains, the disease was, at once and forever, removed by making alterations in them."

If malaria is produced by vegetable decomposition, the general contents of these receptacles would favour the same

*It may not be improper to mention, however, that since 1823, some causes, not very well ascertained, have produced more autumnal diseases in those states, and in the middle states generally, than had previously occurred since the first settlement of the country.

opinion; and above all, this view is supported by the season of the year at which these diseases make their appearance.

In speaking of the moats and ditches, which surround fortifications, Dr. M. alludes again to the prevalent error of confounding typhus with the diseases of malaria—a mistake which leads to improper modes of treatment and prevention, besides "tending to confuse the whole history of epidemics."

"But while it is not very obvious why typhus should be generated out of the habits of a baronial castle, where every defender was almost for ever in the air, it is abundantly easy to understand how remittent and dysentery might arise from confinement within a ditch, aided perhaps by scanty food.

"And farther, this view is confirmed by the analogous consequences occurring to the beseiged, and very frequently also to the beseigers, in the case of modern fortifications. There is often the same bad or scanty food, with similar fatigue and exposure in the night as well as in the day; while the works to be defended are either surrounded by water, or, if the ditch be not wet, it is seldom truly dry in those flat countries which are the most frequent seats of fortified towns. And, in fact, even in peace, these fortified places are generally unhealthy, and productive of the diseases of Malaria, as will be discovered on inquiry by any who will be at the trouble of making it; while it is scarcely less easy to ascertain, that, in most of these cases, the focus of the disease is in the ditch, and that the attack, or the fever, falls first on the sentries who mount the night guards on the ravelins or the glacis."

But why should this mistake lead to improper modes of treatment? The diseases of Malaria are indefinitely varied by the circumstances of the individual, and the nature of the exciting causes, so that emetics and bark can no more be appropriated to these than champhor and wine to typhus. Indeed it will scarcely be questioned, that under some peculiar circumstances, fevers really remittent, may become truly typhus, and (if typhus be contagious,) reproduce the same disease, or that either of these diseases may become the exciting cause of the other——in other words, that the predisposing causes of remittent and typhus fever may be so combined, that diseases will arise, having, to a certain degree, the type of the former, with the peculiar symptoms of the latter. Indeed Dr. M. makes a similar concession in a subsequent part of the work.

"The facts proving that remittents and dysenteries unquestionably arising from Malaria, have in their progress or continuance, become contagions diseases, though not so originally, are numerous, and rest on as good authorities as physic has to produce. * * * * "The assertion, or the fact, does not imply that the fever of any one individual did reproduce, through his secretions, a Malaria similar to the original one, and therefore a fever or dysentery of Malaria; but merely, that under such a state of disease, the morbid secretions in question became the source as well as the matter of the contagion; as happens even with respect to healthy persons under peculiar and well known circumstances. The original disease disappeared, and a new one was produced; or, in the morbid individual, one fever was converted into another of a different character; just as, under other diseases, a contagious hospital disorder of any nature may be superinduced on the first, even to its extinction. Or, it is not that the remittent fever of marshes is contagious, but that it may become, or give way to, a contagious fever. It is perhaps a certain heat of temper excited in maintaining a recent hypothesis, which seems to have viewed this subject in a different and unfounded light, leading to much superfluous and some angry writing."

Lakes in high latitudes, with bold rocky shores, cannot be very dangerous, and lovers of poetry and romance may be allowed to indulge their sensibilities without being alarmed by our authors fears, even if occasional reeds and water lilies should excite some suspicion. When they lie in flat level countries, their banks of course partake of all the properties of marshes.

"But it must also be said in explanation, (a view which is important, as it concerns all waters of this nature, even to pools,) that in France, it is supposed that malaria is not solely produced by the vegetating marsh, but is disengaged from the mud which the summer leaves dry, (a fact which I must notice again) and that it also escapes from the bottom and through the water, accompanying the air which is so notedlyextricated in those cases. And in confirmation of this, it said, that while such pools retain a considerable depth of water, or whenever their banks are steep, no malaria is produced, but that it appears in the reverse cases, or, either on the diminution of the water in depth, or on its retiring from the shores."

For our own part, we are content with "a sufficient reason," and have no disposition, when we have an obvious cause in the mud on the banks, to seek for imaginary ones in the vegetating margin, or in the mud at the bottom.

It is unnecessary to follow our author in his remarks on mill dams. Their insalubrity in this country depends very much upon their locality, and the nature of their banks, and still more, upon the latitude. It may not be improper to mention the popular opinion that they are less unhealthy, when supplied by a large stream; and so far as a full supply of water will keep them at a more uniform altitude, the popular opinion is not destitute of foundation.

The fact that pasture land, when broken up for the first time for cultivation, produces malaria of a virulent character, is mentioned by Volney, Rush, and Cassan, and in the West Indies has long been known as a very dangerous operation; the laborers sometimes dying on the spot, if they remain on the ground during the night.

"It would be well worth the trouble of those whose local situations give them the means, to inquire whether this, and many other analogous agricultural processes, now little suspected, are not causes of the fevers which sometimes appear in rural situations in such an inexplicable manner, when these cannot be accounted for by stagnant waters of various kinds, or by such neglected spots as I have been pointing out. The remark is of value, be the solution what it may; because the remedy will be found in breaking up such lands in June, or in May, if the summer be the necessary period, or what is preferable, in the middle of winter; since the decomposition will then take place at a time in which experience has shown that Malaria is scarcely generated in our own country, nor indeed generally in Europe. In the case of lands recently recovered by drainage, this precaution is peculiarly deserving of attention, because in this case the danger is greatest: and the same is equally true of woods, the mere felling of which sometimes disengages or produces Malaria, as is a much more certain consequence where, as in America, and as I have elsewhere noticed, these woods are broken up for cultivation."

Lands laid dry for the purpose of agriculture, or for the express purpose of destroying malaria, have frequently become much more unhealthy than before.

"It is not difficult to understand that a swamp in which the water is so deep as to impede the growth of as many plants as a drier surface would carry, will produce proportionally less of the poison in question; and that a similar diminution or under proportion of malaria will attend such a tract of land if it should contain many pools

or spots divested of all vegetation. In such a case, we can conceive a certain state of drainage, such as to increase the vegetating surface, without being at the same time complete enough to check the production of Malaria; or a small quantity of poisonous marsh might thus become a large surface of wet and noxious meadow land.

"Thus also, it is not difficult to imagine how the drainage of a lake attended by a noxious margin, might increase the extent of such a description of soil, though the water itself were diminished or exterminated, and a considerable tract of dry land gained also to cultivation."

Perhaps also, there may be a certain state of moisture, much inferior to absolute wetness, which is more favorable to malaria. But we must again renew our protest against the error of considering a state of luxuriant vegetation as favorable to the production miasmata. The exposure of the mud from the removal of the water, and the aquatic plants which previously protected the soil, are sufficient to account for the fact. Hence too we can readily understand why the unhealthiness will sometimes continue but a single season; and upon the same principle, why ploughing by more effectually draining the land, changing the condition of the surface, and favoring the production of a different species of vegetation, will the more speedily correct the evil. The remedy will be the more complete if the land be broken up in the winter, or early in the spring.

Our limits will not permit us to follow the author in his history of the benefits which have resulted from agricultural improvements, and from private and public exertions directed to the correction of sources of malaria. We heartily concur with Dr. M., however, that the importance of the subject in a political point of view, independent of its connection with the health and happiness of so many of our citizens, would justify our government in devoting to it some portion of that talent and investigation, which has hitherto been wasted in political disputes, very little to the honor or permanent utility of the nation.

Dr. M. remarks, that the Delta of Egypt, both in its state of inundation and drainage, would lead us to suppose it to be as prolific a source of miasmata, as the worst situations in

South Africa; yet, unless we allow the plague to spring from this source, the few fevers and dysenteries, which prevail in that country, bear no proportion to what, *a protri*, we might suppose. Egypt, however, is inundated, not by deluges of rain as India, but by the overflowing of the Nile; consequently that part of the soil which is not inundated, is dry. In Bengal when the waters have subsided, the ground remains long in a miry state. In Egypt, on the contrary, such is the aridity of the atmosphere, and the heat of the sun, that the water has no sooner deserted the plains, than they are turned into an impenetrable crust. From these circumstances, therefore, we are prepared to expect that the extrication of miasmata would be on a very confined scale, compared with that which takes place in Bengal. Dr. M. informs us that so far as his observation extends, when intermittents occur on elevated situations, they may always be traced to marshes, on the spot, or in the vicinity.

"It is thus that I find the highest parts of Brittany to be subject to inveterate ague, even on the summits of granite hills reported to be dry land, as for example, at Carhaix. Thus also was it reported that certain hilly situations in Wales were productive of agues, and as was thought, without a cause: but the slender observation which detected that cause in this latter case, would probably have discovered it in the former, and in hundreds more, equally objects of surprise or mystery. Let the ground be carefully examined, both on the spot, and in the neighborhood, and let the possible propagation by means of the winds be also traced by the rules deducible from what I shall hereafter say on that subject, and it is probable that the far greater number of these imaginary difficulties would no longer want their solutions."

Dr. M. refers to the different opinions respecting the immediate origin of malaria; some supposing that putrefaction is necessary; others that living vegetation is an essential ingredient; others again denying that ordinary putrefaction of vegetable matter, attended with stench, can produce the poison. He thinks that this question is set at rest, by the observations of Dr. Rush, respecting the heap of coffee which produced so much excitement in Philadelphia in —93. We so far believe in *final causes*, as to suppose that our alfactory

nerves were bestowed upon us for some useful purpose, and consequently are ready to believe that vegetable putrefaction may sometimes be very injurious. We cannot, however, avoid thinking that too much stress has been laid upon this said heap of coffee; else, why the simultaneous appearance of the yellow fever on the seaboard, from Boston to Savannah. The same objection will prevent Dr. M. from drawing any support from this fact, in favor of his suggestion that a difference in the nature of the plants, may produce a difference in the character of the malaria.

The process of steeping hemp and flax, and the manufacture of indigo, are spoken of as sources of malaria. We doubt whether the injurious effects of the latter occupation can be attributed to malaria in the usual acceptation of the term, as the evil appears to exist in a more tangible shape.

Dr. M. supposes that Malaria is produced at sea, by that peculiar action of water upon the casks by which carburetted hydrogen is produced; and the suspicion attaches still more strongly to bilge water; especially, when accompanied by the leakage from sugar casks. which is known to be peculiarly offensive. Numerous facts tend to prove that fevers frequently spring from these sources, especially in ships engaged in the sugar trade.

How far "mere mud, the produce of the sea, or left by the recess of the tide, can produce fevers is a question rather of curiosity than of practical importance; as the facts which might be adduced in evidence, can scarcely be separated from those in which depositions of mud are brought down by rivers, or in which marshes covered with a rich alluvial soil, exist in the vicinity. The sandy beach of our Southern states, even in Florida, is proverbial for its healthfulness. On the contrary Dr. Ferguson relates cases where, in the West Indies, the pure sand of the sea shore produces fever of the most malignant character.

The suddenness with which diseases appear on the commencement of the rainy season in Africa, led Park to suppose, that it was brought on by the mere presence of moisture:

and has induced others to suppose that malaria previously generated, and diffused through the higher regions of the atmosphere, was brought down by the rain. We think the observations of Dr. M. upon this subject much more rational.

"The facts, as more accurately stated by other travellers, and also in some measure by himself in other places, seem to be, that as the vegetable decomposition necessarily active in so hot a climate, commences as soon as the ground becomes wetted, the generation of malaria begins, perhaps even on the first day or hour; and that, in this, as in every other case, it is but the produce of a vegetating soil, rendered suddenly marshy or wet under a high temperature. That this is the view entertained by the natives themselves, is plain, from the care with which they retire to their houses and endeavor to exclude even the least access of the external air: judging, what is probably true, that the whole atmosphere is one wide body of Malaria. As the rain increases, however, and the ground becomes thoroughly wetted, the diseases diminish, returning again as the retiring of the rains allows it to dry. Hence it is, that in Africa and elsewhere, the greatest influence of the Malaria takes place at the end of the rainy season; and thus also it was on the retiring of the waters after the rains and the inundation, that the great mortality commenced among our troops at Rangoon in October."

The diseases of hot climates are frequently attributed to the water. It is by no means improbable that bad water may produce bowel complaints, but as remittent fevers do not make their appearance where other causes of malaria do not exist, it at most can only act as an exciting cause.

Our author closes this chapter with an estimate of the comparative healthfulness of ancient and modern Italy; and an attempt to elucidate this difficult and interesting subject.

Rome, and the country in its vicinity, was densely inhabited at a very early period of its history. In the reign of Servius Tullus, the city contained 80,000 men capable of bearing arms. The plain of Latium, which is now a desert, was rich and populous; and in the time of the Volsci the Pontine marshes contained twenty-three towns and villages; while many places which, with the citizens of Rome, were favorite resorts for health and amusement, are now uninhabitable. Indeed the whole tenor of the history of the republic proves that many districts which are now desolated by malaria, were

inhabited by powerful and warlike nations, that contended obstinately with Rome for the dominion of Italy.

From the want of medical writers, we can form no idea of the extent to which autumnal diseases prevailed in the vicinity of Rome, during the period of the republic; since history, even in modern times, never condescends to more than a passing notice of epidemics, unless they are so serious as to interfere with the military operations of governments. The country, however, abounded in the sources of miasmata; and we are furnished with sufficient evidence of its suffering severely from them. Not to dwell upon other facts, the first settlers were compelled to abandon the Aventine mount by the pernicious exhalations from the neighboring marshes; and in addition to this, the city itself was repeatedly ravaged by pestilential diseases, which in all probability arose from malaria.

"It is further probable that the larger proportion of pestilences described by the Roman writers, were unusually severe visitations of the marsh fever; though at this distance of time, and under information which is not medical, we must not absolutely decide that some of these may not have been instances of contagious fever, perhaps even of plague. Such probably may have been the pestilences of 355 and 573, since there are facts in Livy's narrative which rather seem to justify this conclusion; and such possibly were the cases in which the city alone suffered, while the surrounding country was exempt. But allowing even much for this, we find from Plutarch, that noted periods of sickness occurred in the time of Romulus and in that of Numa, while similar ones are recorded of the reigns of Servius Tullus and Tarquinius Superbus: and when Livy says that in the short period of 173 years, or, from 287 U. C. to 460, there occurred at Rome or in the surrounding country, no less than nineteen distinct plagues, none of them at longer intervals than seventeen years, and some lasting two or three years together, it is not possible to avoid concluding that the fever of Malaria must have prevailed then in as great severity as it does at present."

It is difficult, however, to make the comparison. The great wealth of ancient Rome would have supported a very dense population under very disadvantageous circumstances. On the other hand, Italy, at present, is suffering from all those causes of moral and political degradation which must attend the decay of feudal institutions that have been raised by fortui-

tous circumstances above their natural condition in society—a nobility proud, poor, degenerate and licentious—a people corrupt and oppressed, without industry or enterprise—the landed estate fallen into the possession of a few speculators, who, intent upon present gain, are too illiberal in their views to form any extended plan of public improvement.

Malaria is generally found to diminish with the progress of agricultural improvement, and independent of the great extent to which this would be carried, in a country so rich and populous as ancient Italy, the cultivation of the soil was considered as an honorable and dignified employment, by the most illustrious men; whose intelligence and unbounded wealth enabled them to execute every plan that might conduce to the ornament or salubrity of the country. The laboring classes were temperate, and protected by laborious habits, and uniform exposure, against the usual exciting causes of disease.

The depressed condition of agriculture in modern Italy has condemned the unhealthy districts to pasturage. The laborers, who are occasionally employed to collect the harvest, reside at a distance, are ill clothed, and ill fed. In summer there prevails in these vallies a suffocating heat during the day, which is succeeded in the evening, from the change of the wind to the north, by an intolerable cold. It is not, therefore, a matter of surprise if the laborers, when exhausted by fatigue and the heat of the day, exposed, as they are, to the cold night air, almost without clothing or shelter, should contract fatal diseases. These considerations are confirmed by the fact that these diseases are always intermittent; since it cannot have escaped the observation of any person familiar with the diseases of warm climates, how much the application of cold, under circumstances of this kind, disposes them to assume the form of a fatal typhoid intermittent.

Other causes perhaps may be found in the gradual change of climate, which has been taking place in Europe for centuries, and which, perhaps, has virtually placed Italy ten or fifteen degrees further to the south. Something perhaps may be attributed to the destruction of the groves which were in-

terspersed throughout Italy, which, as some suppose, were associated with the religious rites of that country, with a view to this very object. An additional cause may be sought for in the geological changes which are constantly taking place.

"Every river which, by bringing down materials from the mountains and propelling the sea, has formed flat tracts of land, such as the great plain of Bengal, or those of the Oroonoko, and the Mississippi, with thousands more of less note and on all scales of dimension, must sometimes rise above its ordinary banks, causing inundations. Thus, when incommoding the adjoining lands in agricultural countries, it is embanked by art; while, in consequence of this process, the alluvial matters which would be dispersed over large spaces, from those changes of direction whence the plains themselves are formed, become confined in the channel itself: depositing within a narrow space on its bottom. Thus they tend to raise the water in its bed, and, consequently, to cause it, on any increase, to overflow, still more certainly, the lands around. And as this effect is the very consequence of the embankment, so, at any given point, the bank must be made to keep pace with the rise of the channel, that the restraint may be effectual and constant. Hence as the river becomes more elevated, the ultimate result is the same as if the surrounding lands had been depressed to the same amount: and thus, while the stream which drained them once can drain them no longer, they become, first, meadows, and ultimately marshes. And if, in the former condition, they can still be drained by means of canals and floodgates, this process becomes in time inefficient, and recourse must be had, as in Holland, to lifting machinery."

"It is thus, in the district in question, that the Po is now, over a large tract, literally running on the summit of a wall, threatening even other dangers than a further increase of bad health which it is producing: both circumstances united having led to a design of letting it loose to find a new channel for itself, which, had the government of Italy continued in the same powerful hands long enough, would doubtless have been carried into execution."

From these political and natural causes, the climate of Italy is becoming very unhealthy. Her population is declining, because the tribute of the world is no longer paid to her political power, or her religious influence; and the pestilence, as the inhabitants retire before it, extends its ravages and multiplies its strength.

In the mean time, the interest of her natural scenery appears to increase with the progress of her desolation. Nature, as if in mockery of man, appears in her most bewitching at-

tire, and holds out to him, in the richest profusion, treasures of luxuriant vegetation, which he cannot enjoy. Her fragrant atmosphere is loaded with the invisible messengers of death, and her brilliant sun and beautiful sky serve but to light the passage to the grave.

The evil is no doubt, to a great degree, within the control of industry and art; and an intelligent and laborious peasantry, favored with freedom, might arrest the evil, and confine it within very narrow limits; but if the present system of civil, political, and religious oppression is continued, the "Eternal City," will soon exist only in the pages of history.

Chapter VI.

On revolutions and changes which take place with regard to the production of Malaria, whether from natural causes or from artificial sanitary measures.—The subjects of this chapter have been in a great measure anticipated in the preceding pages.

A progressive amelioration in climate has generally resulted from agricultural improvement. The most prominent cause of amelioration is the drainage of swamps and marshes; but as the malarious surface is thus sometimes increased, or a state of moisture produced more favorable to the generation of miasmata, the evil is frequently aggravated. Under these circumstances the remedy, for reasons already assigned, will be more complete, if the soil be occasionally subjected to the plough. It follows from these premises, that as the population of a country becomes dense, and the proportion of arable land is increased, it will become more healthy; and on the contrary, when it is in a declining condition, the sources of malaria will extend, and disease prevail in an accelerated ratio.

The removal of forests may very materially affect the health of the surrounding country. Much of the sickness of newly settled countries, may be attributed to the exposure of lands which have been kept in a marshy condition from the want of cultivation, or to the removal of so many obstacles to the diffusion of malaria; and in climates favorable to the production of miasmata, the evil will probably be increased as the clearing advances, until the density of the population brings

every portion of the arable land into requisition. It has been already mentioned that the unhealthiness of Rome has been attributed to the destruction of the forests which protected it from the unhealthy exhalations of the surrounding country.

Forests, on the other hand, may increase the virulence of malaria by preventing their diffusion; and in such cases, an opening sufficient to admit of a free circulation of air, becomes a matter of some consequence.

It may sometimes become a question, whether the evils arising from a marsh may not be remedied, by completely laying it under water; but the experiment certainly is one, not to be adopted without great circumspection. In connection with this, it may be mentioned that in very wet, and consequently very sickly seasons, the most unhealthy situations are frequently remarkable for their exemption from disease.

It is unnecessary to mention the effects which may be produced by changes in the courses of rivers, eruptions of the sea and the possible draining of the Northern Lakes, &c. as the effects will correspond with the principles already advanced.

We have already, in speaking of the malaria of Italy, alluded to the effect of alluvial deposites at the mouths of rivers. We shall, in connection with this subject, take the liberty of making an extract from a succeeding chapter.

"The former great cause, unceasing, if slow, is that indeed in which the whole world is implicated; nor is it difficult to see, as I formerly explained, that while the mountains shall flow to the sea, increasing the plains, and, in creating new lands, providing, in an increase of fertility as well as of extent, for an augmenting population, so must the augmentation of insalubrity and the increase of diseases accompany these changes. And while, in such cases, increase of industry and attention is required to meet the evil, it is the misfortune of Greece, as it has been of many other declining or fallen states, to have suffered a loss or diminution of both, or of that at least which alone could have maintained and stimulated them, from the effects of its unhappy and lamentable political condition. Did any visionary geologist thus choose to speculate on the day when the mountains shall be levelled with the plains beneath, an event which, in a period beyond the range of calculation, must happen should our globe endure thus long, he must also be prepared to view that previous period when, whatever vegetation or whatever animals

may possess the marshes and plains of that world, it will scarcely be man; since, long before this, he will have been driven from them, as he has from the Pontine marshes, by that plague which nature is even now daily preparing in silence to keep his unmanageable increase within bounds."

It is gratifying to know that the prospect of these evils is so very remote, that we need entertain very little uneasiness on the subject, for long before this day arrives we shall be quietly asleep in the lap of mother earth, and little of our blood will run in the veins of any living creature.

Chapter VII.

On the propagation of malaria.—As malaria has hitherto eluded our researches, we can at present only consider it as a component part of the atmosphere, and its diffusion must consequently be regulated by those laws which govern atmospheric currents. Its union with the air, whether it be a simple mixture, or chemical combination, is probably influenced by the temperature, electricity and moisture of the latter, and perhaps by the degree of intimacy with which the aqueous particles are held in combination. To what extent malaria is modified by these changing conditions, has hitherto been the subject only of fruitless speculation, and vague analogies—so many difficulties interpose to prevent accurate and satisfactory observation. We only know that in some conditions of the atmosphere, malaria is much more active than in others, whether it be that is taken up under some circumstances more readily, or that under others, its properties are destroyed, by too close a combination with the air, we pretend not to decide; and only allude to the subject, because the unauthorised confidence of some authors appears to render it necessary.

The most obvious circumstance which occurs to us in considering the effects produced by malaria, is proximity of situation; and it is both reasonable and consistent with experience, to estimate the danger by the distance, as well as by the extent of the pernicious soil. Many instances, however, may be mentioned in which this circumstance has been strangely

overlooked, in the selection of the sites of the towns, both in ancient and modern times; and in none more so than in European settlements in the tropical climates. To the history of modern war, however, we are to look for the most serious and lamentable, and we may add, the most inexcusable errors of this kind. The thousands of lives, which are thus uselessly and often recklessly sacrificed, should certainly recommend this subject to the consideration of government, and induce them to make it a part of the studies of a military education. We would be pleased to introduce some of our author's observations on this subject, but it is needless to dwell upon particular instances when such numerous facts are before the world.

The second circumstance mentioned by Dr. M. is "condensation." It is easy to suppose that while the generation of malaria continues, if not dissipated or destroyed, it must accumulate. Thus experience proves that malaria, when confined within the walls of a forest, as frequently occurs in newly settled countries, and the marshy ground of jungles, or within valleys where the surrounding hills do not admit of free ventilation, will acquire unusual virulence. It is frequently remarked in the southern part of Italy, that the wider the mouth of the valley towards the sea, and the less deeply it penetrates among the hills, it is the more unhealthy.

It is a very curious and important fact, which the present degree of our information does not permit us to explain, that persons living at a distance from the marsh sometimes suffer severely, while those in the immediate vicinity enjoy a comparative, perhaps an entire exemption. It is frequently the case that ranges of hills are particularly affected, while the intermediate low grounds escape. "If this is not to be explained," says Dr. M. "by the flow of a current of air, so directed as to escape the low grounds and declivities, while it ranges along the hills in contact, I have no solution to offer."

It is generally the case that the situations nearest the surface of the earth suffer most, and it is said that the distance between the different stories of a house frequently makes a very important difference. The reverse of this, however, fre-

quently occurs, and when malaria impinges on the acclivity of a hill it is frequently raised to a very considerable elevation.

"But I will add one statement, extracted from Captain Smyth's valuable statistical table of Sicily, because it appears to generalize the whole of these facts; leading to the conclusion, that, in nearly an equal number of cases, the higher grounds suffer as much as the lower; the locally healthy as those which are the very seats of Malaria. In this document out of seventy-six unhealthy towns and villages enumerated, there are thirty-five situated on hills or declivities; while, from personal information, I may add that many of them are at considerable distances from the tracts which produce the disease. And I may add one more remark as to the theory of this propagation, derived from a writer on the climate of Italy. It is, that the southern winds in that country, propagate along the hills, upwards, that Malaria which the northern or mountain ones do not; such winds, independently of their superior power in producing the pernicious exhalations, tending, from their temperature, to ascend the acclivities, while the colder winds, as is easily understood, have the opposite inclination."

Are these facts connected with the specific gravity of malaria? or of that portion of the air with which it most readily combines?

It may easily be conceived that vallies not only condense, but may direct the course of malaria, since winds, when their course at all corresponds with the direction of a valley, frequently sweep along it.

We have already remarked the influence of trees upon malaria; we will again take the liberty of referring to the subject for the purpose of quoting some interesting remarks of the author.

"Lancisi remarks that in later times, there was extirpated near Rome, a forest to the southward, reaching from the heights of Frascati and Albano to the Tiber, and protecting it from the malaria so abundantly generated in that quarter by these marshes. Thus, says he, was destruction first let in upon the Campagna: but it is since that date that a similar proceeding seems to have opened Rome itself in another quarter to the Malaria of this immediate tract of pernicious land.

"If my information at least is correct, there was formerly, at this point, or in a situation interposed between the Campagna and Porta del Popolo, a wood, cutting off the communication through the north-

east winds; and it is since the destruction of this, that the new progress of this pest, so remarkable, has been noticed.

"The evil, spreading as it were, from a fixed point, and making, in every year, a further step, so as gradually to drive the inhabitants before it, as far at least as these are opulent, and able to quit their unhealthy habitations; since not only does poverty check the migration of the lower classes, but, from the causes hereafter to be stated, their crowded streets are far less affected by this poison than the dwellings of the rich.

According to these reports, it appears to enter at the Porta del Popolo, and from the north-eastward; while it may be suspected here, that as far as this occurrence is new, as it is asserted to be, the immediate cause must be sought in the extirpation of the mass of wood just mentioned, which formerly sheltered this quarter of the city from that wind which crossed the pestiferous plain."

Some facts appear to prove that malaria may be retained in situations where it has not been generated.

"To name a striking case of this nature, I may refer to Valetta, alluded to on a former occasion, on account of the consequences which almost invariably occurred in the Floriana guard, while other parts were little affected, or retained their health. Here, the ditch was very deep and narrow, and so perfectly dry that it could not be suspected of producing the malaria to which the effects in question were owing. Nor could this be explained, except by supposing that it lodged and protected from dissipation, a current of noxious air, produced from that salt marsh which seems to be the source of Malaria in Valetta, and which the sea breeze directed on to this spot."

It would also, like contagion, appear to have the power of attaching to certain substances; although it cannot, like it, be transferred from place to place.

"In the Campagna of Rome, it is remarked that if the laborers cut down certain plants, (a bushy thistle, chiefly, of which the botanical character has escaped me,) a fever, that would otherwise not have occurred, is the consequence. The Malaria seems, or is thought, to be entangled within it and to be let loose by this disturbance."

We make another extract, for the purpose of pointing out an instance of very hasty inference in our author.

"Further, it is a common remark in many parts of Italy, that as long as the labourers are in the erect posture, they incur little danger, but that the fever attacks those who sit down or lie on the ground, as if the poisonous matter extended to but a small altitude

above it. Whether, in this case, the cause be, as in the former, an attachment of the Malaria to the ground itself, or to its vegetation, or whether it is that it is a part of a ponderous stratum of air, lying on the ground, as carbonic acid does in the the Solfatara, is a question which requires investigation, at least as far as philosophy is concerned."

The general statement is, that during the day, the labourers may lie down with impunity, and the increased danger unquestionably arises from lying down, and perhaps falling asleep, on the damp earth in the cold evening air.

Does a damp atmosphere favor the production or transmission of malaria, or merely act as an exciting cause of disease? Some analogies, drawn from the ready diffusion of the matter of contagion in this condition of the air, appear to favor the former of these opinions. Malaria too appears to be dissipated or destroyed by the heat of the sun, and rendered active by the evening dew.

"Thus also is it especially remarked, that if a hot day is succeeded by a cold and damp night, the effects of Malaria are much augmented; and the same analogy holds as to similar changes in seasons, or as to incidental ones occurring in any manner. Hence if cold and wet weather should unexpectedly take place in the midst of a hot summer, an augmentation of severity, or a state of disease before not in existence, will occur; and hence also severe epidemics occur particularly, if, to such a hot summer there should succeed a cold and rainy autumn; the production of the poison, as I formerly remarked, being apparently augmented in this manner, while the atmosphere is also rendered a better conductor. The general philosophy applicable to all these cases, is, that watery vapour, or a moist atmosphere, is the best solvent and conductor of Malaria, as a dry one is the worst; while independently of the different effects of those two states on vegetation and on putrefaction, it is the effect of the sun to evaporate or disperse, possibly in a great measure to decompose, that gaseous matter, which is condensed, and probably very often again precipitated, during the evening, together with the vapors which had been held in solution in the air."

If the fact, however, be true that malaria cannot be transmitted over a considerable body of water, it would appear that water has the power of destroying its activity, and by parity of reasoning, we might conclude that a very damp state of the weather was unfavorable to its production. That

fogs are not peculiarly adapted to holding it in solution is further proved by the fact, that malaria is arrested by any intervening obstacle, as trees, houses, &c., while the fog spreads over the whole surrounding country. We have uniformly observed that very rainy weather, in sickly seasons, never fails to arrest the progress of disease, and if followed by cool northernly winds, to check it permanently. Cold autumns are unhealthy, only when cold nights are alternated with days sufficiently warm to generate malaria, and give the former full activity as an exciting cause of disease.

A damp atmosphere may act by producing a degree of moisture favorable to the generation of malaria, and the warm southerly winds, which frequently accompany this condition of the weather, must conduce to the same effect.—Under other circumstances, it will operate by its chilliness as an exciting cause; and when we take this into consideration with the fact, that the seeds of autumnal fever frequently lie a long time dormant in the system, before they are rendered active by an exciting cause, we may justly conclude that the opinions of our author are to be received with great reservation.

It is unnecessary to repeat the evidence advanced by numerous authors to prove, that independent of any peculiar condition of the human body, malaria is infinitely more destructive by night, or rather, that it is in the night only that any serious danger is to be apprehended. In Italy an opinion is prevalent that it is the evening air only that is pernicious, and that after nine or ten o'clock, the extrication, or, as it is here supposed to be, the deposition of malaria ceases.

The night air and the evening dews of summer are a source of alarm in all climates. Dr. M. thinks, and the opinion is no doubt just of many places where, from the absence of intermittents, the cause is never suspected, that the danger really arises from malaria; since the coldest nights of winter seldom produce disease. Yet we may be permitted to add, that Dr. M. in his zealous search after malaria, has overlooked the numerous reasons why night air should be more injurious, in summer, than in winter.

On the subject of *prevention*, Dr. M. is disposed to attribute more efficacy, than we think they deserve, to the use of narcotics—as opium, tobacco, &c. On the subject of wine and generous living, he inclines to the opinions of the old school that they are useful. Luxurious habits will generally warp the opinions of those who are disposed to indulge their appetites, but the united testimony of American physicians, and of European surgeons who have served in the East and West Indies; the universal practice of the aborigines of tropical climates; and the comparative exemption which the French and Spaniards enjoy in these climates from their temperate mode of living; establish the fact that a diet, principally of vegetable food, and as sparing as is compatible with the necessary labours of the individual, furnishes the best protection.

On the influence of fires, Dr. M. remarks.

"That in this case they may act, at least in two ways, is obvious; that is, by drying the surrounding air and thus diminishing its conducting power, and by producing a dispersive ventilation, or bringing a salubrious mass of air on an unhealty point. As to facts in proof of the utility of fires, Lancisi points it out as to Rome; and even Pliny, long ago, declares the same opinion, quoting, further, the authorities of Empedocles and Hippocrates to the same effect. That Napoleon took the same view of their use, adopting this expedient very largely, and with success, when his armies were occupied in the very worst district of Italy, is a specimen of military experience which may save the necessity of quoting others less decisive. One very pointed case, of a civil nature, is also worth recording. In this case, the superintendant engaged in directing the cutting of wood in Africa, erected thirty earthen furnaces on the spot where his men were employed, lighting them every day. Before this, he had always from forty to forty-eight of his workmen sick; when in a short time, they were reduced to twelve, then to four, and finally to one."

The cold air of the night probably, besides acting as an exciting cause of disease, renders the body more susceptible to the impression of malaria. Hence the importance of guarding against it by kindling fires, and carefully accommodating the clothing to atmospheric vicissitudes—a practice that cannot be too closely followed by all who are much exposed in unhealthy climates.

It is a fact so familiar to the aboriginal inhabitants of all tropical climates, as to influence their habits, that excesses in eating, during the heat of the day, are more injurious than at any other time. Inattention to the obvious dictates of nature, indicated by the general languor and loss of appetite which are commonly felt at this time, is probably the exciting cause of a very large proportion of the cases of bilious fever of hot climates.

Intermittents spread with less facility in populous towns; and it is particularly worthy of remark as forming a very decided contrast to what we observe of contagion, that the closest and most filthy streets are the most effectually protected. Dr. M. attributes this to the decomposition of the malaria by fires and smoke. But why go in search of hypothesis, when we have a mechanical obstruction amply sufficient to account for the fact, supported by the analogous influence of trees and rising grounds in obviating the deleterious effects of miasmata?

Great diversity of opinion exists as to the distance to which malaria may be wafted by winds. On a subject which is certainly within the reach of observation, arguments drawn from meteorological phenomena are certainly entitled to very little weight. The difficulty consists in distinguishing the effect produced by a distant marsh, from that of more obscure sources of malaria in the immediate vicinity. We have good authority, however, founded on accurate observation, for supposing that, by a steady uniform wind, it may be carried to the distance of three or four miles, and even much further.

A very obvious mode of determining the question might be supposed to be found in ships lying at anchor in the neighborhood of marshes, were it not for the fact that the diffusion of malaria is arrested, by any considerable body of water. Rush states that ships lying in the middle of the Delaware at Philadelphia escaped the fatal epidemic of 1793. Dr. Blane also states that the crews of the ships which attended the fatal Walcheren expedition, and lay within two or three hundred yards from the shore, were not affected by the exhalations from the land. Other facts equally conclusive in their character are related by the same author. Some facts, however,

are related by Dr. Johnson, which apparently tend to prove that miasmata, which have ascended during the day into the higher regions of the atmosphere, may be brought down with the evening dews, and thus produce an impression farther from the shore, than they could be directly wafted by the wind.

"Having occasion," says he, "to take a passage from Madras to Calcutta in a foreign merchantman, at that time, I sat late on deck, one evening after our arrival in the Ganges, the vessel being at anchor a mile from the shore, and not a breath of wind moving in any direction.

As the dews began to fall, I perceived, all at once, a faint heavy odour, to account for which I was much puzzled, as there was no breeze to waft any exhalation from the adjacent shores. My reflections were soon interrupted, however, by a sense of faintness, giddiness and at length nausea, with which I was suddenly affected. I immediately went below, not a little alarmed, and fully persuaded that I was seized with the fever, whose effects I had so much reason to dread.

On drinking some warm water, to clear my stomach, I took a dose of calomel and opium, and next morning castor oil. Although no further symptoms of fever occurred, yet I felt an unusual degree of lassitude and depression of spirits for some days after I got to Calcutta."

This fact cannot be considered as invalidating the conclusion that miasmata are absorbed or rendered inactive by passing over water, for the impression left upon the mind of Dr. Johnson was, that they could not have come immediately from the shore.

Dr. M. however is disposed to give it a much more extensive range.

"That within moderate limits, such as four, five, six, or more miles, the fever, or the malaria, is blown off the shore to the ships, I have found distinctly recorded in ships' journals in different instances; as I have also been repeatedly informed that the smell becomes immediately sensible; while officers aware of this danger on these coasts, quit the deck and go below, at the moment they perceive this change to have taken place, or even, on some occasions weigh their anchors and run to sea, And though I have quoted one

specific case of this nature in the Medical part of this work, the accuracy of proof which it affords is so remarkable, that I must notice it here. In this instance, with a healthy ship and crew, anchored at least four miles from the shore, a sudden change of wind brought out the smell of the land, on which orders were immediately given for weighing; while, even before the cable chain could be cleared, most of the men working at it, who were the only ones first permitted on deck, were seized with disease which proved the fatal cholera to the greater number."

When we think, however, of deciding the question from isolated facts of this kind, it is constantly to be borne in mind, that ships frequently carry with them local causes of malaria, and that the bodies of the men from previous exposure may be already predisposed to disease.

Dr. M. however, is not even contented with these more extended limits, but supposes that the spring intermittents, popularly attributed to the East wind, do in reality arise from Malaria transported from Holland. We are very willing to admit with our author that an East wind, simply as an East wind, can do no harm—that it is a bad wind when it blows under evil circumstances—that it may be hot and dry in one place, bitter cold in another, and damp and foggy in a third—also that in Flanders as on the Eastern coast of the United States,

"It is the south and the south west-winds that propagate the diseases of Malaria; and the reason will be evident on inspecting the geography of this tract. And there, it is the north, and also the north east, which remove them, because they blow from the sea; though charged with fogs to darken the whole land."

But Dr. M. proceeds to say, that in Scotland, where intermittents from a local cause are unknown, they are produced by the East wind, and that clear and unaccompanied with fogs.

"Thus, for example, on a sudden change of the wind to the east, soldiers in the Castle of Edinburgh, susceptible of the disease from former habits, become immediately affected, when a north or west wind, equally cold, does not produce the same effects: while, in other places equally free of the endemic disease, a new disorder is even produced in a new subject."

And lest he should not find intermittents enough to serve is purpose, he intends to prove in a future volume, that those ndefined and undefinable sufferings, usually attributed to ervous and hypochondriacal affections which have been equally the "jest of poetry and prose"—the jest of rude health, ignorance and selfishness, do in reality arise from malaria brought from Holland.

We object to our author's eloquence as ill timed, and to his reasoning as not to the purpose. The East wind has not the power of originally producing fevers unless it conveys malaria, but it has the power of reviving them by the cold damp fogs which accompany it. He acknowledges a predisposition from former disease, and this predisposition we fancy is sufficient for the explanation, without supposing a new application of malaria. We have ourselves experienced the renewal of intermittents, with all those terrible feelings which our author compassionates so sincerely, and which we attributed, not to the malaria accompanying the East wind, for it was at a season of the year when malaria had not been called out by the genial heat of the summer sun, nor to the cold accompanying this wind, because the colder north winds have rather the opposite effect, but simply to their dampness acting upon predispositions acquired during the preceding autumn.

Chapter VIII.

On the influence of climate and season in modifying malaria.—Is the production of malaria modified by changes of season and temperature, or is its influence in producing disease thus modified? Dr. M. carries the former of these opinions, so far, as to suppose that climate, temperature, &c. have no material influence in modifying the type or character of the fever, but that the varieties are produced by a difference in the evolution of malaria—a length, we apprehend, to which very few of his readers will follow him. On the contrary, we believe that all diseases produced by malaria are essentially intermittent, and that the variations from this type are produced by the influence of constitutional or exciting causes.

We have generally been disposed to attribute spring intermittents to the predisposition acquired on the preceding autumn. Dr. M. attributes them to malaria generated at the time. In temperate climates they seldom attack those who have not had fever on the preceding autumn. They are more numerous after a mild winter; Dr. M. accounts for this last fact by supposing an incomplete destruction of vegetation, and a degree of temperature favorable to the generation of miasmata. We have rather been disposed to attribute it to the effect produced upon the individual. We see an effect of cold weather analogous, although leading to a different result, in the fact that persons, who have had the yellow fever in one of the southern cities, lose the immunity they derive from that circumstance, by spending a winter in a northern climate. Sufficient heat and moisture being all that is necessary to produce malaria, a very dry, or a very wet season, under different circumstances of soil and location may be equally productive of disease.

Through the geography of malaria, which forms the subject of the next chapter, our limits do not permit us to follow our author very extensively. For one remark we were unprepared.

"But there is a general accusation against the whole of the shores of the Baltic; against Denmark very widely, and especially also against Samogitia and Courland: while Stockholm is familiarly known for the severity and inveteracy of its intermittents: so little is a northern latitude a security, where there are wet lands and a hot summer. The marshy forests of the Kama and the Viatka in Poland, are equally notorious; and it would appear indeed that the fevers of Malaria abound in greater severity, generally, through all the woody and marshy regions of these countries, even when placed far to the north; since even Lapland itself does not appear to be exempt."

Few Americans we think will read the following without a smile.

"I might detail the geography of the malaria of America at considerably more length, since the information here is more perfect, but that I am unwilling to extend a chapter, the length of which is already formidable, and since it is, practically, less interesting than the

countries especially frequented by our travellers, to which I have, preferably, given the room which I cold spare. Generally therefore, I must observe, this plague occupies the Canadas, in summer, every where along the shores of the great lakes and rivers; the character being commonly that of inveterate intermittents; while, whether Lake Erie is worse than the others or not, it has the worst reputation, as have, elsewhere, the banks of the Mohawk river, and the Genesee. With respect to the United States, formed of alluvial land as they chiefly are, Volney remarks, that out of a space of three hundred leagues, he did not find twenty houses free from the fevers of Malaria: the most distinguished places, nevertheless, being the course of the Ohio, rendering even the interior state of Kentucky insalubrious, the towns of Norfolk, Charleston, New York, Philadelphia, New Orleans, Savannah, and Pensacola, with Baltimore, and almost the entire states, in fact, of Virginia, the Carolinas, Georgia, the Floridas, and Louisiana.

"Such are the United Provinces of this great country; while in many of the Southern States, the evil has, for some time, been so rapidly increasing, as almost to threaten the abandonment of the lands; the proprietors having in reality, in many parts, been obliged to quit their houses and estates and retire to the towns, even against an express law which compels their actual residence; thus leaving them to the superintendance and occupation of their slaves, and offering a strong argument in favor of a black population at least, if not of an enslaved one. But to cut short this portion, the same plague is found to prevail very widely even through the extreme interior, and amid the newly settled or still uncleared lands, along the course of the Mississippi and its endless tributary streams; to the no small surprise and the serious grievance of the numerous settlers by which such a state of things was not contemplated. What the fate of much of this new country may ultimately be in this respect, it is difficult to foresee, when we reflect on the numerous circumstances already stated, which modify the production and propagation of Malaria, and where so much is yet to be done as to alteration; though it is to be suspected that no changes and no cultivation will ever bring into a state of salubrity, a country so abounding with alluvial plains, even in the interior, and so extensively the produce of its numerous and enormous rivers."

Notwithstanding our authors gloomy predictions, we incur no risk in asserting that, with the exception of the alluvial soils on the large southern water courses, there is scarcely a situation in which an individual, by avoiding unnecessary exposure to exciting causes, and by exercising a prudent caution in his diet, may not escape autumnal disease.

We pass over the chapter on the nature of malaria as the various hypothesis on this subject, have not even the shadow of probabilty to recommend them, and our author has ro new theory to advance.

Chapter XI.

On the general effects of malaria upon the constitution and on the diseases which seem to be produced by it.—

"That the residence of successive generations in a district of this nature produces a degeneracy of the races, is amply shown in various parts of France and Italy; and never more distinctly than when the inhabitants of the marshy plains and vallies come into immediate contact with a people of the same radical origin and race, inhabiting the healthy, mountainous or hilly tracts which bound or include these. The stature not only becomes reduced, but deformities are frequent; while anatomically the bones are found to be affected; their extremities in particular being unusually large and spongy, and rickets, as a positive disease, being also an implicated consequence.

"The color of the skin, and the general superficial aspect of the people in these cases, has never failed to attract the attention of even the most cursory travellers. The former is sallow, or yellow, or else stained with different hues, and in extreme cases, has even a livid appearance: while, to a medical examination, it is found to pit on pressure; this condition often amounting to absolute œdema, and the muscles being soft, yielding, and unelastic. Such persons have often the appearance of being fat; but this, when it exists, is wanting in firmness, as if a great part of the accumulation consisted of water in the cellular membrane. It is also to be remarked that the hair is flaccid and the beard scanty; while, in the most poisonous regions of France, it is further asserted that pale hair abounds, when in more healthy places, the very same race is noted for the darker tints. A dull languid eye, very often also yellow, is a circumstance which has attracted general attention.

"An enlargement of the abdomen, commencing sometimes even from birth, and often rendered the more conspicuous from the slenderness and emaciation of the limbs, is also a feature which no traveller has overlooked; and it is often in itself sufficient to demonstrate the nature of the place where these wretched beings are doomed to live, or rather, as the inhabitants of the Pontine marshes express it, to die. That the very form and extent of the liver can often be traced externally, by the eye, is an anatomical fact, belonging to this state of things; while an investigation after death discovers various diseased structures in that organ, in the spleen, and in the mesenteric glands; together with water in the cellular membrane, and a general enlargement of the whole lymphatic system. In the Pontine marshes, the residents have the appearance of walking spectres;

being often also œdematous all over, and thus dragging on a miserable existence through the short term of their wretched lives. That the inhabitants of such districts have a late puberty and are less prolific than in healthier regions, is a fact which has been asserted and again contradicted; yet it is one which could not excite surprise should it be proved.

"There is nothing in these pernicious countries more striking to a cursory traveller, than the appearance of age which occurs at a very early period of life. Even the children are frequently wrinkled; and, in France, in perhaps all the worst districts, a young woman, almost even before twenty, has the aspect of fifty; while, in men, the age of forty is equivalent to sixty in healthier countries, both in appearance and vigor; the very few who live to fifty, appearing to have arrived at the protracted term of fourscore. Of personal beauty in females, there appears to be little trace at any time; but whatever may have existed is rarely prolonged beyond seventeen. And the expression keeps pace with all else; being that of unhappiness, stupidity, and apathy: an habitual melancholy which nothing can rouse, and an insensibility to almost every thing which operates on the feelings of mankind in general. A slow and languid speech, a similar languor in the walk and in all the actions, indicate equally the condition of the mind and of the body in these wretched countries.

"That the period between thirty-five and fifty is the most hazardous and diseased portion of this diseased and miserable life, is a very general remark in all the regions subject to malaria; while it is not less generally observed, that those who survive this period, often live to become old; frequently also recovering a certain portion of health which might have been lost. Of another general effect which has been asserted to exist, it seems reasonable to entertain some doubts; since it is an assured fact, that a high degree of nervous irritability, both mental and bodily, is a frequent attendant upon the chronic condition of the fevers of malaria. The assertion is, that the people in question are, generally, little irritable, or even sensible; and sometimes, to such a degree, as scarcely to express the feelings of pain, even under surgical operations.

"That apathy which was just noticed as expressed in the physiognomy, is a character which influences the whole conduct of these degraded and unfortunate beings. Seeking solitude, shunning society and amusements alike, without affections, without interest in any thing, they make no exertions to better their condition; not even to avoid the sources of danger that surround them, or to take the most common precautions that are pointed out: while, attached to the soil, from habit or indolence rather than from regard, they will not be convinced of its nature or dangers; fatalists in practice and even in belief, and refusing to admit that there is any other lot in life than that which is their own.

"That such a condition is a frequent result of marsh fevers, and very particularly under improper treatment, is a fact which I must

notice in the medical part of this work: but even independently of this, such debility of the intellect seems to be the produce of the insensible action of this poison on the nervous system: a circumstance that indeed might naturally be expected from physiological considerations connected with the general influence which malaria exerts on the body. And that this condition is even propagated, seems, further, fully proved; so that an universal degeneracy of mind and body both, appears to be the certain lot of those races which a combination of unfortunate circumstances have placed in countries that seem to have been intended, rather for the habitations of reptiles and insects than for those of man."

Our author thinks it probable that the stupidity of the ancient Bœotians, and of the modern Hollanders, arises from malaria. It is to be regretted that this influence was not known to Buffon, as it might, in the absence of better arguments, have very materially assisted him in establishing his favorite theory of the degeneracy of the human race in America.

After alluding to fevers, our author speaks of dysentery, cholera and diarrhea as diseases of a marshy country. That these diseases are, for the most part produced by malaria, will be generally admitted. They require, however, a peculiar modification of the exciting causes of disease to call them into action, and with respect to the two latter, it may be remarked that they are occasioned by miasmata, of a degree of concentration much less than is necessary to produce fever, and that frequently they arise from the injurious effects of great heat and sudden changes of temperature upon the viscera.

In addition our author enumerates apoplexy, palsy, and visceral obstructions. To these he is disposed to add the mesenteric affection, worms, ulcers, rickets, scrofula, phthisis, scurvy, chlorosis, very probably goitre, and above all, neuralgia including sciatica, tooth-ache, and head-ache.

"I shall only add, that if the consideration of the neglected varieties of intermittent was a main inducement to the production of this work, it was the study of Neuralgia which originally led to the whole inquiry; to that primary course of observation and reflection, of which the remaining results will be submitted to the medical reader in the subsequent volumes."

No schoolboy's imagination indeed could be more active in conjuring spectres, than is our author in hunting sources of malaria; yet upon this subject, we may be permitted perhaps to remark, not only that these diseases may frequently arise from malaria, but that they will most frequently be met with in those situations, when its operation is so feeble as not to produce regular intermittents.

The old opinion of the healthful tendency of intermittents is probably not entirely destitute of foundation. Since we may observe that in those situations where annual epidemics prevail, the inhabitants are remarkable for their freedom from disease during the remainder of the year.

Having already exceeded our limits, we are compelled to take leave of the author by cordially recommending his book to the perusal of our readers. This work is chiefly valuable for the collection and arrangement of a great body of valuable facts, comprehending perhaps every thing that is certainly known upon the subject. These facts, however, have been collected from books, and hence his reasonings and his conclusions, are frequently more indefinite and inaccurate, than could readily have occurred to a person familiar with the subject from personal observation. We regret to say, that the style of the author is by no means equal to the industry and judgment displayed in collecting his materials; it is laboured, and occasionally eloquent, without attaining that perspicuity and conciseness, which are the chief merits of a work written expressly for scientific or professional readers.

F.

ART. VII.—*A Treatise on the Scrofulous Disease, by C. G. Hufeland, Physician to the King of Prussia, &c. Translated from the French of M. Bousquet, by Charles D. Meigs, M. D.*—pp. 215.—12*mo*.

The name of Hufeland, having become familiar to the physicians of the United States, through the medium of the periodical publications, this work, the first of his that has been republished in this country, we have no doubt will be very favourably received. A treatise had been published

upon this subject by our author in 1797, when a premium having been offered by the Imperial Soc. of Naturalists, a new edition, corrected and improved by the observation and reading of twenty years was prepared, which took the prize.

As scrofula is principaly confined to the two extremes of society, opportunities for acquiring an intimate acquaintance with it, fall to the lot of very few of our physicians. At the same time, the inveteracy of its different forms, the painful and incurable nature of many of them, the tenacity with which they adhere to the successive generations of a family, and the prospect of its increasing with the density of our population, and the growth of our manufacturing establishments, all conspire to render it a subject of peculiar interest.

Scrofula is a general disease of the lymphatic system, and consequently the local affecions which pass by this name, are either symptoms of this general disease, or accidental determinations of it to particular organs. The complicated structure of the lymphatic system, its delicate though peculiar sensibility, and its intimate conexion with every part of the body, render it very liable to take on morbid action, from local injury, constitutional disease, or from sympathy with the diseases of other organs. So long as the general organic tone and sensibility of this sysem remain unimpaired, these local affections partake of the usual characters of sanguineous inflammation or irritation and it is therefore under peculiar circumstances only, that they receive those modifications which entitle them to the appelation of scrofula.

Of the nature or proximate cause of the Scrofulous Disease.—The speculations of physicians upon the comparative influence of the solids and fluids in occasioning disease, have produced a very great difference of opinion upon this subject.—We do not think it conistent with sound philosophy to attach much importance to speculations of this kind. The presence of both solids and fluids is essentially necessary during every period of the animal growth and existence; and they exert so direct and immediate an influence upon the composition and healthful condition of each other, that neither can be diseased without producing a corresponding affection in the other.

The pathological changes, which take place in the minute ramifications of the vascular and nervous system, are too far beyond the observations of our senses to enable us to derive any advantage, from prosecuting our investigations in this direction, while the light, which physiology throws upon the reciprocal influence of the solids and fluids in those parts of the vascular system which lie more open to our observation, is just sufficient to enable the bold theorist to attribute the phenomena of disease to either. Both parties are led by experience to the same practical principles; both appeal to observation, and assume to themselves the exclusive merit of explaining the results of their common practice, upon rational principles. Speculations which are thus founded upon a common basis, must admit of some ground of compromise, and the unprejudiced enquirer will hesitate to admit principles, which tend to the separation of things so intimately associated, as are the solids and fluids of the animal æconomy, both in their healthy and pathological condition.

Entertaining these views, we cordially concur with our author, that in order to obtain a correct view of the pathology of scrofula, it is necessary to consider the structure, sensibility and functions of the lymphatic system as well as the nature and changing conditions of the fluid it conveys.

General considerations on the lymphatic system.—This system is composed of three orders of organs. 1. *Absorbent vessels properly so called*, an assemblage of a multitude of small, delicate, semitransparent, uneven vessels, provided with valves, arising by innumerable radicles from the membranes, and from the cellular tissue which is met with in every part of the body. 2. *The thoracic duct* in which the greater part of these vessels terminate. 3. *The lymphatic or conglobate glands*, small, oval, reddish bodies, composed of white vessels, blood vessels, and nerves, and distributed along the course of the lymphatics.

The principal functions of this system are two; 1. *Absorption.* This takes place, from the internal and external surfaces of the body, and from the intersticial spaces of the cellular

membrane, and through these, from the substance of the organs of the whole body.

The object of this absorption is; (*a*) to repair the constant waste of the body; (*b*) the resorption of the lymph and other exhalations; (*c*) to absorb all heterogeneous particles, that they may be eliminated, and to remove the serous part of the secretions, when retained too long in their proper receptacles, as is especially the case, with the bile, the urine, and the semen, (*d*) to take up and transport morbific matter from one part of the body to another, as is often said to be the case with pus, (*e*) lastly, it is not improbable, that this set of vessels may exert a great influence in developing and modelling the organs, since they are peculiarly irritable at those periods when the growth of the body takes place most rapidly, and during the development of those organs whose functions are periodical, or exercised only during a certain period of our existence.

2. *Preparation and assimilation of the nutritive fluids.*

"The lymphatic system is not a simple passive highway, open to all those principles that are proceeding to enter into the great circulation. It is really in this system, that the organic molecules introduced into the body, begin to lose their heterogeneous qualities, and to approximate towards the character of animal matter; it is here they take the first step from the physical to the vital world; a species of preparation which disposes them to be clothed with the properties of the blood which they are destined to renew."

From this view it will appear that the matters that circulate will be:

1. Chyle produced from alimentary substances introduced into the primæ viæ.

2. Substances taken from the external surface of the body.

3. The substance of the organs themselves, which have become a prey to absorption.*

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*We do not here wish to be considered as concurring with all the author's views. There are very strong reasons for believing that the functions of all the lymphatic vessels, whether arising from the alimentary canal or from the rest of the body are identical, and consist in absorbing and assimilating those substances which are intended for the renovation of the blood, while the absorption of extraneous substances which are again to be eliminated is left to the veins.

The exercise of these varied functions requires these vessels to possess a peculiar and very delicate sensibility, which is indeed shown to prevail by the number of nerves which enter into their composition, and by their proneness to take on inflammation, from irritation of the organs in which they have their origin.

This very imperfect abstract of our author's views, will serve to show how important the absorbent system is to the general health of the body, and how liable it is to be effected by disease, and the derangements of the organs. It supplies the organs with nourishment, and the quantity and quality of this, will very materially influence their structure and proper organization. It purifies the body, by removing heterogeneous or superfluous articles, and hence, from its imperfect action will result, emaciation, hypertrophy, serous infiltrations and morbid structure.

Remote causes of the scrofulous disease.—1. Every thing which may reduce the tone of the solids, and particularly that of the lymphatic system. 2. Whatever may exalt the irritability of this system, or blunt its sensibility. 3. Every thing that occasions chyle or lymph of a bad quality.

Causes of this class, do not merely give rise to a scrofulous taint, but if they act sufficiently long, give birth to the disease with all its characteristic symptoms.

They are 1. *Hereditary tendency.* The forms under which this constitutional disease manifests itself are; (*a*) the ophthalmia of infants; (*b*) cutaneous eruptions, ulceration and puriform discharges from the ears, all of which are scrofulous symptoms at that time of life; (*c*) glandular enlargements; (*d*) spina bifida; (*e*) induration of the cellular tissue. This disease is supposed by M. Hufeland to be scrofulous, partly from its analogy to the scrofulous diathesis, and partly because it was not noticed until the strumous constitution has become so common, and especially prevails where that constitution is most common.

2. *Sex and age.*—Children and women are the most liable to scrofula. In the latter, weakness and nervous susceptibility are promoted by the habits of the sex, and the great

irritation which attend the development of their generative system, and in the former by the numerous predisposing causes, which accompany this period of life, and the irritability of the lymphatic system arising from their growth, and the development of their organs.

3. *Weakness of the parents.*—This cause especially operates when the organs of generation have been debilitated by venereal excesses, or unnatural practices. Children of a mother, and especially of a father far advanced in life, also bring into the world a scrofulous disposition, which is developed at an early period.

4. *Syphilis of parents.*—Syphilitic parents frequently produce children that very soon after birth present decided symptoms of the scrofulous taint, and it has been remarked that since the appearance of syphilis, this disease has become much more common, and most strikingly so, in those countries where the former is most prevalent. Nor is this surprising, since the lymphatic system is particularly affected in syphilis.

5. *Unwholesome aliment.* In this class are:

(*a*) "*Artificial lactation.*—Nothing is more injurious to the health than artificial suckling. I have almost always found that children brought up in this way were more or less disposed to the scrofulous disease."

Consumptive patients, bear milk perfectly fresh, better than after it has been suffered to stand an hour or two. It is in the former case still under the influence of the laws of vitality, and in the latter, have the chemical changes which now begin to take place rendered it less digestible? Whatever may be the rationale, the fact deserves attention. In continuation the author remarks:

"We commonly forget that most of the animals that furnish us with milk are purely herbiforous, while women derive their nutriment from each of the three kingdoms of nature. This difference in the nature of aliments produces an effect on the secretions. There is in the milk of animals something of a vegetable nature, which does not exist to the same amount in the milk of women. And hence the tendency to acidity, from which the chyle itself seems not to be wholly exempt, a tendency which is very common in children who are brought up by the hand."

"By the motion of its lips, the child that sucks its mother's breast occasions a flow of saliva into the mouth: this liquid mixes with the milk, enters into combination with its principles, which in this way acquire an inchoate animalization, that makes them more easy of digestion. The mixture of saliva with food, is a condition essential to a good digestion, not only in children, but in adults also.

"It results from what I have said above, that the milk of animals, and in general all artificial nourishments, furnishes a bad kind of chyle, and may, hence, become a predisposing cause of the scrofulous disease. However, as there are cases in which lactation is out of the question, I advise that the infant should be put to the teat of the animal, or at least, that it should take the milk while it is still warm, in order to diminish, as much as possible, the inconveniences which we attribute to artificial nourishment."

(*b*) *Impropriety, excess, and too much variety in diet.*—The sensibility of the stomach in children is adapted to a single article of diet, and the arrangements of nature cannot be interrupted with impunity. From the influence of this class of causes results a bad digestion, bad chyle, and lastly the scrofulous diathesis.

6. *Unwholesome air.*—The influence of a *cold and damp, an inconstant and variable, and an air highly carbonated, and charged with animal vapours*, is illustrated by the frequent appearance of the disease in low damp situations, on sea shores, in the vallies of the Alps, and in the lanes and cellars of large cities. Does light exert any influence over animal, as it does over vegetable life?*

7. *Every thing that weakens the digestive powers.*—The inconsiderate and premature use of tea and stimulating liquors. The abuse of medicines that exert a direct action on the primæ viæ, such as emetics and purgatives; tonics, astringents and opiates.

8. *Precocious studies.*–The culture of the body in the order of nature precedes that of the mind, and the latter, in youth, should never be suffered to interfere with the perfect growth and health of the body. This subject requires the greater attention, because parents ignorant of the fact that prema-

*The opinion is generally entertained, yet the fact that many young animals, during the period of their most rapid growth, live in entire darkness, and that others, as the hyena, seldom see the light of day, will throw some doubt upon this subject.

ture intelligence is a characteristic trait of scrofula, are delighted with the early manifestations of genius, and devote their whole care to the cultivation of a mind that is already too active for the feeble body which contains it.

9. To these causes we may add want of exercise and cleanliness; the abuse of heat and cold, depressing affections of the mind, and the too early exercise of the sexual organs.

Occasional or exciting causes.

1. *Development of the body, growth.*—We have already alluded to the irritation of the lymphatic system, which attended the progress of these changes, and which is evidenced by a proneness to inflammation, and by swellings of the glands, called *growing kernels*, that disappear after the body has completed its growth. This will serve to show why these periods are so favorable to the progress of a variety of scrofulous diseases. In some rare instances this irritation effects a cure of these diseases.

2. *The seasons.*—The spring increases the tendency to inflammatory diseases of every kind, and frequently gives activity to latent scrofulous affections. The summer, especially if rainy, produces upon some persons the same effects as the spring.

3. *Mechanical injuries.*

4. *Diseases of irritation.*—The diseases of the lymphatic system of the digestive tube and of the skin, have the most decided influence of this kind. The same effect however, will follow when the crisis or regular termination of any disease does not take place. The crisis of diseases of the skin is very generally incomplete, and the secretions continue long deranged, and are restored with difficulty. The crisis of diseases of the digestive organs, is frequently interrupted by excesses or improper food, and in all diseases the same result may follow the excessive use of evacuants, or the improper administration of tonics or anodynes.

From this review of the remote and exciting causes, the author infers that

1. *The scrofulous taint has its primitive seat in the solids* because, 1. An hereditary affection must necessarily consist in

a modification of the solids. 2. The causes are either debilitating or irritating, and both these act upon the solids.

"2. *The scrofulous disease consists in a great degree of weakness and atony of the lymphatic system connected with a specific irritation of the same system, and in a peculiar alteration of the lymph.*

"Irritation and weakness,—such is the double character of the scrofulous disease. Irritation without weakness does not give us an exact idea of it; otherwise, all irritation of the lymphatic system would produce the scrofulous diathesis. Thus, variola and the scrofulous taint ought to be one and the same. The truth is, however, that in the latter the lymphatic system is at the same time too highly excited and too much debilitated, whether the weakness may have preceded the irritation, or whether it may have followed it.

"There is weakness, because:

"1. The weakest parents are most liable to give birth to scrofulous children.

"2. The affection attacks precisely that age and sex wherein weakness predominates; that is to say, children and women.

"3. Most of the essential causes are of a debilitating nature.

"4. The whole aspect of scrofulous persons bespeaks weakness and relaxation of the constitution.

"5. Tonics only are capable of destroying the scrofulous disposition.

That there exists at the same time a state or irritation is proved by the following:

"1. Most of the occasional causes are irritating; such are mechanical causes, the natural development of the organs, cold, &c.

"2. The slightest irritation of the lymphatic system sometimes suffices to bring to light the scrofulous taint.

"3. Most of its symptoms announce a disease of irritation.

"4. Antiphlogistics cause most of the symptoms to disappear, though they are incapable of destroying its germ."

3. *The proximate causes of the scrofulous disease exist in the fluids, as well as in the solids.*—In support of this opinion it may be urged, 1. That the fluids influence the tone and degree of cohesion of the solids, since they serve as the vehicle of the materials of which the latter are composed. (2) That the fluids are the natural stimuli of the vascular system, and there is a natural relation between the sensibility of the vessels, and the impression which the fluids make upon them. If, therefore, they make an insufficient impression the circulation languishes, and congestion and obstructions follow. But if on

the contrary, the fluids are too acrid, the action is increased, and vascular irritation is produced. The lymphatic system is the more exposed to injuries from this source, inasmuch as they circulate the fluids by their own power independent of the action of the heart; and in addition, the peculiar sensibility which is necessary to the performance of the function of assimilation, opens a new avenue to disease.

4. *The affection of the lymphatic system which constitutes the scrofulous taint, alters the quality of lymph.*

The lymph may be variously affected. 1. It may be too thick and viscid, and not sufficiently irritating to keep up the necessary action of the vessels. 2. It may be too thin and watery, and destitute of the proper degree of animalazation. 3. It may be too irritating, as when it is loaded with acrid or saline principles, or when it is vitiated by the reabsorption of the secretions. 4. Or it may exist in too great abundance.

The causes capable of altering the composition of the fluids are; 1. The quality of the aliment. 2. The state of the digestive powers. 3. The qualities of the atmosphere. 4. The state of the secretions and of nutrition. 5. Imperfect assimilation.

There may be in this disease no absolute acrimony of the fluids, but merely a change of relation between the sensibility of the solids, and the impression made upon them by the fluids. The sensibility of the solids may either be increased or diminished, and disease will result, or the quality of the lymph which peculiarly adapts it to act as a stimulus to the vessels, may be varied, without its acquiring any positively irritating power. That the fluids of the body, are susceptible of variation in composition, will scarcely be denied by those who are acquainted with the diversity of their principles, and the elaborations they undergo; and if any doubts remain, the bare inspection of the blood drawn from persons laboring under different diseases, will be sufficient to remove them.

Besides the direct sources of vitiated lymph, which we have already assigned, there are others arising indirectly from the action of the vessels. It may be vitiated from stagnation in the vessels, or it may be hurried along without undergoing

the requisite changes in the parts through which it has passed. Lastly, the vessels may be so debilitated that the lymph will be imperfectly animalized, and those changes will take place in it which arise from the laws of inanimate matter.

These are the changes which take place in the fluids of the lymphatic system. When the disease extends so as to attack other tissues; 1. The secretions become very irritating, and frequently inflame the parts over which they pass. 2. There is a tendency to the disposition of coagulable lymph. From this cause arise the enlarged lymphatic glands, joints, &c. and even the gibbosity of the vertebral column, usually arises from accumulation of lymph about the ligaments, and the bodies of the vertebræ and ribs. 3. The secretions frequently manifest a strong tendency to acidity, manifested in the green colour of the stools, the acid odour of the exhalations from the lungs, and of the perspiration. 4. When arrived at its highest degree, the disease is frequently attended with a scorbutic state of the fluids, indicated by colliquative sweats, repeated hemorrhages, and ulcers of a vinous colour. Lastly, when arrived at this stage, the author thinks that some forms of scrofula may become contagious.

Description of the scrofulous diathesis.

1. *External appearance.*—The appearance of the body which the author calls the *scrofulous physiognomy* is characteristic:

"1. A short thick neck. 2. The jaws rather stronger and broader than common. 3. The head rather large in proportion to the other parts of the body, especially the back part of the head. 4. Light coloured hair. 5. The face slightly bloated; its skin delicate, transparent, white, somewhat rosy. 6. Most commonly the eyes are blue, the pupils very large. This appearance often indicates a scrofulous state of the mesentery. 7. The upper lip rather thick.—This is one among the symptoms which do not mislead us; but I ought to remark that it is sometimes periodical. 8. The nose itself is often a little swelled, red, and shining. 9. The whole body appears to be fat and well nourished; but on a closer examination the flesh is found to be flabby and soft; it does not possess the resistance and elasticity which indicate health and vigor. 10. The belly is somewhat larger than it ought to be, although it may not have become as hard as it will be in the future progress of the affection. Sometimes it becomes very large from the very slightest causes.

"2. *Irregular development of the organs.*—One of the effects of the scrofulous disease is to retard the development of certain parts, and to hasten that of others.

"1. The development of the teeth, bones, and muscles, learning to walk and to talk, are either difficult, backward, or succeed each other in an irregular manner.

"2. The intellectual faculties, and those of the generative organs are, on the contrary, most commonly, very precocious."

Various ailments generally regarded as unimportant, are connected with the scrofulous diathesis, such as, 1. Frequent inflammation and derangement of the mucous surfaces.

2. The different cutaneous affections, and lastly, the various symptoms of derangement of the digestive organs.

3. *The scrofulous fever.*—A slow fever of an indeterminate character, that seems to form the transit from the scrofulous diathesis to the scrofulous disease.

Characteristic symptoms of the scrofulous disease.

1. *The first and most common is swelling of the lymphatic glands.* With the general character of these our readers are sufficiently acquainted. They are most frequent in the neck, after that in the axillæ, then those of the groin, and sometimes of the whole body. A single gland is rarely affected; they are often confounded together, and form an enormous tumour, or they become united so as to resemble a sort of chain. The internal tumours appear most frequently in the mesenteric glands causing marasmus; they are next to this most frequent in the lungs producing scrofulous consumption; they also appear in the liver, spleen, trachea, and sometimes in the brain.

2. *Cutaneous eruptions of different kinds, particularly about the head.* These are critical in their character, and divert the disease from the interior to the exterior surface of the body.

3. *Inflammations in organs which are liberally supplied with glands.* The eye is more especially affected. The well known disease called scrofulous opthalmia, thickening of the cornea, fistula lachymalis, are of this character. The ulceration of the tarsus, called stye, is an unfailing indication, in the opinion of the author, of a scrofulous diathesis.

4. *Mucous discharges* from the eyes, ears, the pulmonary, digestive, and genital organs.

5. *Scrofulous ulcers and lymphatic swellings.*—These last are indolent tumours of an irregular form, arising from depositions of lymph in the cellular tissue. To these we may perhaps add goitre, which often arises from local causes, but frequently is endemic in mountainous regions where scrofula abounds.

"*Period of disorganization.*—The third stage embraces, in the first place, those cases in which the scrofulous disease passes from its primary seat in the lymphatic system into the other tissues, and clothes them with unaccustomed forms; in consequence of which it is not always of easy recognition: and secondly, those in which it attacks such organs as are essential to life, and those whose disorganization menaces the near approach of death.

"1. *Mesenteric-atrophy*, (*marasmus.*)

"2. *White swelling of the joints.*—These generally depend on the scrofulous diathesis, and are ordinarily complicated with chronic inflammation of the bones and caries, or they degenerate into caries.

"3. *Spontaneous luxation.*—An affection peculiar to the hip, and almost always of a scrofulous nature.

"4. *Scrofulous dropsies.*—Hydrocephalus, both acute and chronic, frequently depends on this cause; and this is the reason why scrofulous children are more subject to it than any others. We have several times seen it take place after the suppression of a discharge from the eyes or ears, and after the repercussion of tinea, either occasioned by inconsiderate applications, or occurring spontaneously; and we have also known it to disappear after the return of these symptoms.

"5. *Scrofulous or tubercular consumption.*

"6. *Changes in the bones.*—Swellings of the bones known as spina ventosa, and caries are often effects of the scrofulous disease in its highest degree of intensity.

"7. *Scrofulous cancer.*—It is not a rare thing to see a scrofulous engorgement pass into the state of scirrhus, and even of cancer.—This is principally the origin of that humid cancer which is chiefly found on the lips.

"8. *Abdominal consumption*, (*tabes abdominalis.*)—Abdominal consumption differs from marasmus, because it does not occupy the same situation and developes itself in adult age, while the mesenteric atrophy is a disease peculiar to childhood.

"9. It cannot be doubted that rachitism derives its origin from the scrofulous taint, since it appears under the influence of the same causes, in individuals affected with the same taint, and, to use such an expression, at its expense; for it is a matter of observation that glandular engorgements and softenings of the bones mutually assist each other; though it is a fact that the glands are rarely affected secondarily in cases where rachitis is fully developed.

"10. *Nervous affections depending on the scrofulous taint.*—How often in the subjects of this taint have we seen cutaneous eruptions,

swelled glands, &c. disappear suddenly, to give place to spasms, paralysis, hypochondriasis, and a hundred other such affections, which disappear in their turn on the restoration of the former symptoms!

"11. *Cretinism* is, in my opinion, the highest grade of the strumous constitution. In this case the infection is general; it is not a single part that is affected, but the whole body is scrofulous.

"It is observed, that the greatest number of deaf and dumb are found in scrofulous families. The same remark has been made of countries where the scrofulous diathesis is endemical."

Treatment of scrofula. The cure of the disease rests upon the following indications:

"1. To withdraw the patient from under the influence of the causes of the scrofulous diathesis; for a cure is impossible while these causes continue to act.

"2. Although acidities and mucous saburra oppress the primæ viæ evidently as effects of the scrofulous taint, nevertheless, these matters react on the cause which produces them, and oppose the cure; whence a necessity for keeping the bowels free, and for neutralizing the acids as fast as they are formed.

"3. To elevate the tone of the constitution, and especially that of the lymphatic system. This is the fundamental basis of the treatment.

"4. To regulate and reanimate the functions of the lymphatic system by allaying the irritation of which it is the seat.—

"Under this head we must arrange the class of tonics; because, the irritation of the lymphatic system being dependent on a state of weakness, we often find in tonics the most certain of our curative means.

"5. Wholesome aliments that are rich in nutritive principles, baths, a pure dry air, light, and sun-shine.

"6. To correct the direct effects of the scrofulous taint, such as engorgements of the glands, acrimony of the lymph, &c.

"In this case we ought carefully to inquire, whether the scrofulous disease is accompanied with irritation or asthenia: for although the latter ordinarily predominates, it sometimes happens, nevertheless, that the lymphatic system is highly irritated either in its whole, or partially. We must under such circumstances recur to the use of antiphlogistics until the irritation shall have been subdued. Frequently in these very cases, as for example in violent opthalmias, it is necessary to make use of local bleedings.

"We have seen above, that the exterior symptoms of scrofula alternate, so to speak, with the internal, and vice versa; so that the one may be regarded as a crisis of the other. Hence the important precept, to favour, as much as possible, the tendency of the scrofulous blemish to the exterior of the body;—for this is the means to

arrest its progress, to preserve the internal organs from its attack, to render the general treatment more successful. Among the means which answer this indication, the chief are baths, stimulants to the skin, and issues. I could cite a multitude of instances in support of this truth, but one will be sufficient."

Diatetic treatment. Our limits will not permit us to do more than give a very cursory view, which we regret the less, as there is no deficiency of information upon this point. It consists of; 1. food, light and digestible, of vegetables and lean meat; 2. a warm, dry, and open air, and if practicable in the country.

3. *Exercise.* This will be the more effectual, if voluntary and elicited in the way of amusement.

4. *Attention to cleanliness.* This is to be effected:

"1. By daily ablutions of the whole body with fresh water.

"2. By ordering one or two tepid baths every week: but we shall recur to this measure.

"3. By frequently changing the body linen.

"1. In addition to the fact that there is no better means of keeping the skin clean, baths have the further advantage of facilitating both absorption and exhalation.

"2. Another property which cannot be denied them is that of causing an equal distribution of the forces, by means of the gentle excitement they produce over the whole surface of the body, by enlivening the sensibility, re-establishing the equilibrium of the fluids, soothing the excessive irritation, facilitating the absorbing operations, and regulating the functions of the lymphatic system.

"3. Even when scrofula is in full vigour, baths are very useful in preventing metastases, and for diminishing the lymphatic acrimony.

"*Pharmaceutical Treatment.*—We shall begin by laying down rules, the knowledge of which seems to be essential to a successful treatment of scrofula.

"*First rule.* No disease demands more patience on the physician's part than this; being by nature essentially chronic, time is one of the necessary conditions for its successful treatment.

"*Second rule.* Time and the natural development of the organs are two precious elements which ought to be taken into the account in the treatment of scrofulous affections. It has already been shown how, by means of this development, and by the natural revolutions of the lymphatic system, this affection may either cure itself or become easily curable.

"*Third rule.* Spring is, without contradiction, the most favorable season for combating the scrofulous diathesis.

"*Fourth rule.* Never mistake the suppression of glandular tumours, and of other local affections for the cure of the scrofulous diathesis.

"*Fifth rule.* Do not believe in the existence of a specific remedy for the scrofulous taint; a disease which acknowledges many causes, and which is so identified with the *constitution* that *it* must be entirely renovated before it can be rescued from it: such an affection cannot be cured by a single remedy.

"*Seventh rule.* The curative means must be occasionally varied in order to obviate the inconveniences arising from habit. All medicinal substances act with renewed vigor, whenever they are exhibited under new forms; a standing rule which cannot be too often repeated.

"After having laid down the rules which should direct us in the administration of the pharmaceutic means, I shall now proceed to speak of these means:

"1. *Emetics.* Among the means employed in curing the scrofulous diathesis, emetics deserve a distinguished place. To the advantage of cleansing the first passages, a matter of importance in this disease, they add that of exciting absorption and strongly agitating the lymphatic system.

"Although emetics are never formally contra-indicated in scrofula, I nevertheless rarely employ them where there is manifest atony of the digestive organs. I prefer, in scrofulous and pituitous habits, a mixture of one or two grains of tartar emetic with twelve grains or a scruple of ipecacuanha, in half an ounce of oxymel of squills and an ounce and a half of water."

2. *Purgatives.* This class of remedies is particularly indicated in scrofula, by their direct operation in evacuating the alimentary canal of its irritating contents, and indirectly by their influence over the absorbent system. The author proscribes the neutral salts entirely. He relies principally upon jalap, and the resinous purgatives, which by their resolvent power, counteract the debility that might be expected to follow their operation. Aloes are indicated where there is general debility with languor, and engorgement of the abdominal organs, but should be carefully avoided in all cases of inflammatory or nervous irritation. Rhubarb is an excellent purgative and tonic which may be used more freely than aloes in inflammatory cases.

3. *Antimony* in small doses exert a peculiar influence over the lymphatic system. It restores all the secretions of the skin, the liver and the lungs, promotes absorption, and the resolution of glandular engorgements, and reduces inflammatory action. It is particularly useful when the skin does not

perform its functions properly, or where there are cutaneous eruptions and ulcers. When too long continued, it has a tendency to debilitate the system, and especially the stomach and bowels. Where the remedy is not contra-indicated, its injurious effects may be obviated by varying the preparation, or by the combination of narcotics and tonics.

4. *Mercury.* The long continued use of mercury debilitates the system, and if glandular engorgements are in a state of high irritation, it hastens their suppuration. If irritation prevails therefore, it should be diminished by purgatives or local bleeding, or if there be much debility, its effects should be counteracted by tonics, aromatics and anodynes; and salivation, under all circumstances, should most carefully be avoided.

"1. Mercury may be given with advantage in all the forms of the scrofulous disease, but principally in cutaneous eruptions, engorgements, lymphatic infiltrations, chronic phlegmasias, and more particularly still in the opthalmias and nervous affections dependent on the scrofulous taint.

"2. But too much circumspection cannot be used in those individuals, who by the very structure of their bodies appear to be disposed to phthisis, in those who are threatened with scurvy, as well as in all cases of weakness of the alimentary canal, and in all individuals subject to abundant hemorrhages.

"The combination of sulphur and antimony with mercury deprives the latter of such of its properties as are too irritating, favours its determination to the surface, while salivation is less to be dreaded from it."

5. *Muriate of baryta.* This remedy acts by a peculiar irritation on the alimentary canal, the conglobate and mesenteric glands, and removes their obstructions; it increases the secretions. It is peculiarly efficacious in affections of the skin, ulcers and ophthalmias, and it does not like mercury and antimony, weaken the digestive organs.

"It is especially adapted to cases where the lymphatic system is irritated, an irritation which iron, mercury, bark, &c. would not fail to aggravate; also, when scrofula has seized upon organs of a very irritable nature, such as the eyes, lungs, &c.

"In the scrofulous affections of the lungs, which it is so easy to exasperate, and where even calomel is too irritating, I look upon the muriate of baryta as one of the best medicines within our reach."

6. *Muriate of lime.*

"This article enjoys nearly the same properties with the one we have just been considering, except that it is more irritating; indeed it more decidedly increases both the sweat and urine. It requires therefore more precaution in its exhibition."

7. *Bark and the astringent tonics.* The weakness accompanying this disease appears to indicate this class of remedies, where there is no inflammation, or where the irritation which produces the inflammation arises from weakness. Its administration is frequently rendered more safe and efficacious by the combination of antispasmodics, narcotics and antiphlogistics.

8. *Preparations of iron.*

"1. Iron, as I just now said, is more astringent than bark. It is not adapted to those hard and immoveable indurations in which the cohesion is already too great. 2. As an excitant of the sanguiferous system, it is clear, that it would aggravate the condition of the patient, provided that there were the slighest tendency to inflammation. 3. When the lungs are irritated, when they are the seat of some minute glandular swellings, if there be cough, or flying pains in the breast, be careful to avoid the martial preparations, for they would bring on the pulmonary consumption, with which such patients are already menaced. 4. The same remark applies to cases in which an internal suppuration is going on. 5. But, is the patient of a light complexion? Has he a lax fibre? Does his whole constitution announce weakness? Is he disposed to the serous diathesis? The preparations of iron work miracles in such cases."

9. *Narcotics.*

"Opium, hyosciamus, cicuta, belladonna, bitter sweet, and all the articles which compose the class of narcotics, are very much employed by modern physicians.

"Their immediate and essential effect is to diminish the sensibility, and even, in some degree, the irritability also. Now, the essence of the scrofulous vice consists, as we have before said, in a simultaneous state of irritation and weakness of the lymphatic tystem. Therefore, narcotics may suit very well as far as regards the first of these circumstances, but not so well as to the second; and as, in general, the irritation depends in this case on weakness, it follows that these medicines can only produce a temporary relief, even in the most fortunate circumstances. I repeat, that tonics alone are capable of effecting a solid and durable cure.

"But when the irritation is primitive, or at least when it is not a consequence of weakness, every thing capable of diminishing sensibility may be useful. In this view the narcotics deserve a distinguished place in the treatment of this sort of irritation."

MISCELLANEOUS INTELLIGENCE.

ANALECTIC, ANALYTICAL, AND ORIGINAL.

ANALECTIC.

1. *Mr. Battley's Liquor Cinchonæ Cordifoliæ.*—In the first, but we hope not the last, number of Dr. FARRE's JOURNAL OF MORBID ANATOMY, Mr. Battley has detailed some experiments which he lately made on the yellow bark. He appears to think that he has now obtained a fluid or liquor, containing *all* the medicinal principles of the bark in substance, without the inert woody fibre—consequently a preparation superior to sulphate of quinine. This is such an important subject that we shall here give the series of experiments, and the results to which Mr. Battley has come since the original experiments were published in the journal above mentioned.

"EXPERIMENTS ON THE CORTEX CINCHONÆ CORDIFOLIÆ.—Having recently been engaged in a course of experiments on yellow bark, with a view to a more correct and complete analysis of it than has yet fallen under my observation, I feel justified by the success of my labours, in submitting to the profession the following detail of my operations, for the two fold purpose of inviting their attention, generally, to the importance of pharamaceutical analysis, as subservient to the improvement of the materia medica; and particularly to the very interesting results of my present investigation into the nature and properties of bark, the actual separation of its constituent principles, and their power of combination with other substances; all with reference to the ulterior investigation of the relative medicinal virtues of the several simples and compounds, that will successively pass under our review in the different stages of this analytical process.

"1.—*Maceration.*—Ten pounds (apothecaries weight) of fine flat yellow bark, having been macerated for five hours in several gallons of distilled water, at a temperature of 150° Fahr., the infusion was of a bright yellowish red color, fragrant smell, and very bitter taste. When cooled to 110°, it became opaque, with a thick pellicle on its surface. On being exposed in the evaporating dish to a continued temperature of 150°, or thereabouts, when condensed to about a fourth of the original quantity, it began to deposit a dark tough substance, which gradually increased as evaporation proceeded, until the fluid approached the consistence of syrup, when the deposit was withdrawn, and the fluid suffered to cool to 110°. At this point it assumed the appearance, as if a quantity of milk had been diffused

through it; and four or five pints of distilled water being suddenly plunged into it, the whole became disturbed; and an immediate and copious precipitation ensued, of matter in the form of masses, at first tough and waxy to the feel, but readily yielding to the pressure of the hand, and when separated from the fluid, drying very quickly, and pulverizing almost spontaneously. The fluid, after this precipitation, was beautifully bright, very fragrant, and exceedingly bitter; and, being slowly condensed, formed a semi-opaque EXTRACT,

	lb.	oz.	dr.	gr.
The weight of which was	1	8	4	34
Ditto of deposit and precipitate together,	0	4	0	30
Total	2	0	5	4

"The extract was next diffused in distilled water, and was most easily dissolved, forming a fine rich mixture, semi-transparent, of a beautiful yellow, bitter and aromatic. Heat (130°) being applied, and *dilute* sulphuric acid added to a degree of pungency, the mixture was much brightened: after some hours it was saturated with lime. The sulphate (which was of a bright yellow) being washed and dried, was submitted to boiling alcohol; and the spirit being evaporated, the beautiful brown crystalline mass, strongly partaking both of the smell and flavor of bark. The combined matter of the deposit and precipitate was then placed in *sub-dilute* sulphuric acid. The solution was of a very deep yellow, semi-transparent, and very bitter, but at the same time pleasant to the taste. This having been decanted, and more sub-dilute sulphuric acid added, and a gentle heat applied, the second solution was in all respects similar to the first. The two solutions being then mixed together, and saturated with lime, the sulphate (of a pale reddish brown) was treated like the last, and with nearly similar effect. The residuum of the deposit and percipitate was then dissolved in successive portions of *dilute* sulphuric acid, until it ceased to impart the least bitter or bark flavour, and the several solutions being mixed together, and saturated with lime, the sulphate (which was quite white) was submitted to boiling alcohol, &c., precisely as the two former. At the last, the *insoluble* part of the deposit and precipitate being washed and dried,

	oz.	dr.	gr.
Weighed	1	5	54
The acid solutions together having imbibed	2	2	40
Total	4	0	34

This *insoluble* matter was then boiled in alcohol for twenty minutes. The spirit was both deeply tinged and flavored. The residuum

was again boiled in successive portions of alcohol, until all that was soluble was taken up; when the remaining insoluble part being washed and dried,

	oz.	dr.	gr.
Weighed	1	0	35
The spirituous solutions together having imbibed	0	5	19
Total	1	5	54

"These solutions were then mixed together, and deposited (when cold) a copious percipitate, which being exposed to *sub-dilute* sulphuric acid, instantly disappeared. The acid mixture being further diluted with water, and saturated with lime, the sulphate fell instantly to the bottom, leaving suspended a gelatinous matter, which gradually subsided, and remained upon the surface of the lime in the filter. The sulphate dried of a bright yellow, and was treated like all the former. The spirituous solutions, after parting with the precipitate mentioned above, were mixed with sulphuric acid to pleasant sourness, and retained their transparency unaltered. The mixture was saturated with lime, and the sulphate (which dried of a deep red, tinged with yellow) was treated as before. The supernatant mixture was quite bright, of a deep port wine color, and astringent to the taste. Three pints of distilled water being plunged into it, the whole colouring matter was instantly thrown down, and being collected and dried weighed.....1dr. 28gr.*

"II.—*Maceration.*—The whole process that has now been described, was repeated again with the residual bark. It would be tedious and unnecessary to detail the operations at length, the results being all very similar to the first, agreeing perfectly in kind, and differing only in degree, inferior (as might have been expected) both in quality and quantity to those of the first series of experiments. The only difference observable in the second instance was, that a yellow, powdery effloresence (1 dr. 28gr.) floated on the surface of the watery infusion, and that there was little or no deposit during evaporation, till after the plunge of distilled water, when the percipitation was instant and copious, as before.

	oz.	dr.	gr.
Weight of Extract	4	2	42
Ditto Precipitate	2	3	12
Total	6	5	54

"III. and IV.—*Macerations.*—The residual bark was again macerated in distilled water, a third and a fourth time, with this only difference in the present case, that the two infusions being both

"*20 grains of this imparted to sulphuric acid 2 1-2 gr.
Ditto to boiling alcohol 11 gr.

extremely weak, were mixed together, and the compound operated upon in a manner precisely similar to I. and II., and with results still inferior to both in quality and quantity.

	oz.	dr.	gr.
Weight of Extract	2	5	4
Ditto Percipitate	0	7	0
Total	3	4	4

"V.—*Decoctions.*—The bark, after the four preceding macerations, was next boiled for many hours in several successive portions of distilled water. All the decoctions were mixed together, and condensed by evaporation to a state somewhat resembling mucilage in appearance, when after the plunge of distilled water, as in former experiments, percipitation ensued to the extent of—

	oz.	dr.	gr.
	0	5	32
Extract obtained from the remaining liquid	4	6	45
Total	5	4	17

"VI.—*Papin's Digester.*—The *residual bark* was then placed in distilled water in Papin's digester, and kept at a high temperature for several hours. The water was pressed off and evaporated. It had little, if any, flavor of bark, nor was the plunge of distilled water followed in this instance by any precipitation, as it was in all the former experiments. The extractive matter (wt. 3dr. 30gr.) was tough, of a dark colour, and an exceedingly disagreeable rough saltish taste. This being dissolved in cold water, formed a mucilaginous mixture of a dirty sickly brown colour, and without the least flavor of bark. Dilute sulphuric acid (to pleasant sourness) being added, the appearance remained unchanged; and the mixture being saturated with lime, and the sulphate (dirty looking) submitted to boiling alcohol, as in former experiments, there was no result of crystalline matter.

"VII.—*Acid Decoction.*—The remaining *woody fibre* having been thoroughly washed and dried, was (lastly) boiled for several hours in many gallons of distilled water, mixed with sulphuric acid, and then left to macerate for fourteen days. This last decoction was intensely bitter, and what is yet more remarkable, the fibre itself, at the last possessed so much bitterness, that it was found scarcely possible to deprive it entirely of flavor, though repeatedly deluged with water during a whole day. The decoction having been saturated with lime, the sulphate was quite white, and the supernatant liquid slightly green. The sulphate was boiled in half a gallon of alcohol, and imparted more bitterness to the spirit than any of the preceding separations of lime had done. The spirit when condensed to four ounces, was slightly tinged with brown, and strongly

flavoured: and sulphate acid being added, till litmus paper indicated a trifling excess, and the mixture being set at rest, after some hours crystals began to form about the surface of the fluid, in contact with the vessel, of a much darker color, but the same aromatic odour as the fluid; and when the process of crystallization had entirely ceased, the fluid was poured off, and was still very bitter, and slightly alkaline. Having been then neutralized with the least drop of acid from the end of a glass rod, and no more crystals being seen to form, the fluid was evaporated to dryness, leaving a transparent brown substance resembling emetine, which quickly attracted moisture.

"VIII.—All the different *results* of these experiments, mentioned in order, have been arranged and deposited for the inspection of the curious, in the Museum of the Academy in London Ophthalmic Infirmary, Moorfields, where these experiments were first conducted, and where they will be again repeated, if such be the desire of the profession, for the verification of the particulars above described.

"I purposely forbear at this time to state the conclusions which I think may be fairly drawn from these experiments, or to explain more fully the particular views with which they were commenced; being impelled to this silence at present, partly, by my unwillingness to obtrude my opinions upon those, who are so well able to form their own conclusions from the facts before them; partly by my sincere wish and request to be favored with the unbiased judgments of others, in relation to all or any of the particulars that have been now presented to their notice: and lastly and above all, by my humble yet anxious hope, that the striking novelty and interest of my present communication, may have a tendency to excite encreased attention to the labours of chemical anyalysis, to awaken a spirit of inquiry favorable to future research in matters of science, respecting which, much ignorance (and its usual effect, much deception) at present prevails, and thus ultimately to lead, by necessary consequence, to important improvements both in the practice of medicine and pharmacy.

"Richard Battley.

"*Fore Street, April 24th*, 1828.

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"[July, 1829.] P. S. Since the date of the above, I have continued my experiments on yellow bark, on a large scale and in a variety of forms; and have thus been enabled to verify the former results, and to confirm to my own satisfaction, both the principles upon which those experiments were founded, and the conclusions which I am disposed to draw from them. The issue of my investigation into this important subject, is briefly this: Analysis has failed in its attempts to discover wherein the peculiar and essential principles of bark reside; and chemistry can as yet boast no preparation of this invaluable medicine, which, combining *all* its active properties, can fairly claim to be received with confidence, as an

efficient representative of this powerful agent. The boasted efficacy of the sulphate of quinine might from the very nature of the compound, have been reasonably doubted, even had success more uniformly attended its adoption in medical practice; but the repeated instances of its falure, recorded by experience, are sufficient to abate our confidence in its virtues, and to evince the want of a still more efficient preparation.

"To supply this disideratum in pharmacy, I invite the attention of the medical department to a new preparation, which I have succeeded in obtaining, by a process similar to that of the *Liquor Opii Sedativus* and which I propose to designate by the name of 'LIQUOR CINCHONÆ CORDIFOLIÆ,' being a concentration of all the essential properties (*with the aroma*) of bark, and proving of equal efficacy with the exhibition of bark in substance. It has been submitted to the test of experience by the highest medical authorities in London, and always with eminent success; and I think myself justified, by the numerous and decisive testimonies in its favour, in submitting it with confidence to the notice of the profession, as a valuable production of pharmaceutical art, and an important addition to the Materia Medica.

"N. B. A similar process has been tried with various other drugs, which are amongst the most useful instruments of medicine, such as Aloes, Rhubarb, Sena, Sarsa, &c. and in all cases with equal success; and specimens of all these preparations (in similar form and under similar denominations, viz, *Liquor Sarsæ*, &c.) may be seen at the Laboratory of the London Ophthalmic Infirmary, or at my private Laboratory, Fore Street, where the operations are continuous and open to the inspection of the professional public.—*Medico-chirurgical Review.*

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2. *Peculiar Odorous Principle in the Blood of Man, distinguishing it from that of other Animals.*—Such is the title of a Memoir published in the Annals of Public Health and Legal Medicine, by M. Barruel, "chef des Travaux Cliniques," to the Faculty of Medicine. He observes, that a Medico-legal question not unfrequently arises respecting stains from blood on clothes. The chemist may pronounce that a stain is produced by blood, and not by any other coloring matter, but he cannot by possibility pretend to affirm whether that blood be or be not human. Our author had been engaged in obtaining the coloring matter from the blood, by boiling that of bulls, coagulated with a great excess of tolerably concentrated sulphuric acid. In conducting the experiments he was constantly struck with the strong smell of the stall (*odeur de bouverie*) emitted, but thought very little on the subject, till an accident occurred that drew his attention more particularly to the inquiry.

An individual, after losing considerably at play, swallowed a large quantity of opium with the view of self destruction. M. Orfila

was summoned, and as a copious bleeding had been practised, resolved to ascertain whether any traces of morphine existed in the blood. M. Barruel assited, and the blood having first been coagulated in a *bain-marie*, it was triturated, without affording any peculiar odour. It was then boiled with a sufficient quantity of sulphuric acid and water, when there issued from the flask so intolerable an odour of human perspiration, that the operator was fairly obliged to make good his retreat for some seconds from the laboratory. It now struck our author that it might perhaps be possible to distinguish the human blood by this test from that of other animals, and accordingly he set to work, and ultimately arrived at the following conclusions.

1mo. The blood of each species of animal contains a principle peculiar to itself.

2do. This principle which is highly volatile, has an odour like that of the perspiration, or cutaneous and pulmonary exhalation of the animal from which the blood is obtained.

3tio. This volatile principle is combined with the blood and not to be perceived as long as the combination obtains.

4to. When the combination ceases the odorous principle of the blood is volatilized, and it becomes not only possible, but absolutely easy to recognise the animal that furnished it.

5to. In every kind of animal this odorous principle is more intense in the male than in the female; and moreover, the colour of the hair in the individual, is attended with differences in the odour.

6to. This principle is dissolved in the blood, so that it may be shewn not only in the blood, as a whole, but when deprived of fibrine, or in the serosity.

7mo. Of all the modes employed to liberate the principle in question, the sulphuric acid is the best.

In order to obtain the foregoing results, it is only necessary to pour some drops of blood, or serum into a glass, and throw on it a slight excess of concentrated sulphuric acid (about a third or half the volume of the blood) and stir it with a glass rod. The odour that arises, as was mentioned before, always resembles the sweat of the animal that supplies the blood. Detailed statements are appended respecting the odour from the blood of oxen, horses, sheep, &c. but as the above rule states the general fact, we need not particularize each animal in rotation. It became important to ascertain whether dried stains of blood upon linen would furnish any indication, and M. Barruel asserts, that provided the stain be of a certain size, it is easy to recognize the kind of blood, even after the lapse of more than fifteen days. The portion of linen stained must be cut off, placed in a glass vessel, and allowed to lie quietly in a small quantity of water for some time. When the spot is well soaked, the sulphuric acid is poured on it, and stirred with a glass rod as before. Our author is ignorant if after a greater length of time than fifteen days, satisfactory results could be obtained.

M. Barruel concludes with some hints to the Juges d'Instruction, and earnest recommendations to the profession to regale their olfactory organs. If the present become an established mode of legal diagnosis, "smelling a savory suit," will no longer be a figurative expression! Seriously, however, the facts above detailed are curious, if authentic. An experiment too to determine their accuracy would be easily made.—*Ibid.*

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3. *Observations on the Use of the Ergot of Rye.* By Mr. Davis, Surgeon Pershore.—In a short paper published in a recent number of the Midland Reporter, we find some observations by Mr. Davis on the ergot, which we shall lay before our readers. He remarks that the ergot has strong claims to our attention, its powers being *sui generis*, and really wonderful. "Under favorable circumstances, it will bring on and end a labour in an hour, which might have gone on for days, thus saving the practitioner much harassing anxiety, as well as rescuing the most amiable and interesting portion of our species from much mental distress and acute and unnecessary suffering, and in all human probability, in many instances, from an untimely grave." But Mr. Davis is far from recommending the ergot upon all occasions. He thinks its administration requires great caution, and that it is likely to do incalculable mischief when injudiciously given.

"1. It ought rarely to be given in first cases.

"2. It ought not to be given if the pelvis be not capacious.

"3. It ought not to be given unless the parts be well dilated.

"4. It ought chiefly to be given in cases where the labor is unusually tedious, in consequence of want of action in the uterus.

"5. In many cases of hæmorrhage during parturition, and in retention of the placenta.

"If the parts be properly dilated and lubricated, and if the uterus be acting feebly and inefficiently, one dose of ergot will, I am fully persuaded, in nine cases out of ten, end the labor satisfactorily within an hour. It would be highly improper to give it in cases of impaction; in any presentation, excepting a natural one, or where there is a want of proper proportion between the child's head and the pelvis of the mother; or where there exists any rigid contraction of the soft parts.

Mr. Davis has detailed six cases where the ergot was given with great advantage. In one case, it was a first labour, and the pains were dreadfully excruciating, and recurring with scarcely any intermission. Opium was repeatedly given without effect. The os uteri was dilated, but no advance was made. A single scruple of the ergot terminated the labor in an hour and a half.—*Ibid.*

4. *Nitrate of Silver.*—The following observations on this powerful medicine were contained in a letter from Mr. Ceely, an intelligent surgeon in the country.

"In two cases of very painful digestion I used the nitrate for with months, and arrived at four grain doses. One of the patients lived on gruel two months, and subsequently small portions of fat bacon for three more; and her perseverance has gained for her that health and comfort which she had not enjoyed for five years before. In numerous other cases I have derived infinite advantage from this sedative, conjoined with the plan of diet you have so ably advocated. I have never uninteruptedly continued the use of the nitrate beyond two months; nor have I ever seen any of its ill effects on the skin. I have found this article of great use, made into a pill with extract of poppy or hemlock, or any thing similar, and introduced up the rectum in the quantity of from one to three grains, twice or thrice a day, in that simple tenesmus supervening on active or protracted diarrhœa. Its effects are more decisive and more permanent than the direct sedatives usually employed."—*Ibid.*

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5. *Human monster with two Heads.*—This is described by Dr. De Michaelis, professor of anatomy and surgery in the Royal University of Sassari, in Sardinia, in the *Annali Universali di Medicina*, for May, 1829. Maria Teresa Parodi, at Sassari, ætat. 32, having borne eight well-formed child, was delivered on the third of March, 1829 of a female child, the upper part of which was double; it presented with the heads, which were easily protuded, the one after the other; the umbilical chord and the placenta were single. On closer examination, the child was found to be well-formed inferiorly up to the base of the thorax, which gradually widened, and at the cervical region, gave rise to four well-formed arms, and two distinct necks and heads. The following is an extract from the description.

On regarding the anterior surface of the thorax, it appears to form only one cavity, common to both children, the middle of the sternum being somewhat concave, and forming, as it were, a furrow, at the sides of which the sternal extremities of the ribs of both the children meet. In the usual situation there are two mammæ; the right of the right, and the left of the left child; and at the upper angle of the sternum, two well-formed clavicles are inserted, which belong to the external upper extremities; besides these, two smaller clavicles are seen rising from the middle portion of the sternum for the internal upper extremities, the shoulders of which are lying very near each other. The necks are quite insolated, and have the two shoulders between them; their two anterior surfaces are directed anteriorly, and toward each other, so that the children, in their natural position, embrace each other with the inner arms. The posterior surface of the thorax exhibts, in its median line, the inner ribs of both children meeting each other, and closing it posteriorly; below these, the hypochondriac regions are completely united, and

inferiorly closed by a simple sacral bone, the base of which is somewhat broader than usual. Laterally from the posterior median line, the two armpits of the inner upper extremities, and the two internal mammæ are seen very near each other; the two spinal columns are slightly converged, till they meet at the sacral bone; the circumference of the abdomen does not exceed that of an ordinary infant of the same age; the navel is in the usual place; the pelvis, and the two lower extremities, exhibit nothing unusual; the external genitals are somewhat lower than usual, the labii and nymphæ are well formed, and cover three apertures, the larger of which being situated in the middle, appears to be the opening of the vagina; the two others being smaller, must, from their lateral position, be the two urethral openings; moreover, the nurse has seen the urine discharged from both openings simultaneously, from which circumstance it should appear that there is one bladder with two urethræ. The anus is single, and at the usual place.

At the first the health of both children appeared to be equally good; but, at the time of drawing up the report, nineteen days after birth, it appeared that the left was more vigorous than the right; which had an icteric hue, and was affected with slight ophthalmia. The children are suckled by the mother and a nurse; they appear to have the sensation of hunger at different times, from which it should seem that there are two stomachs; the pulsations in the præcordial regions are synchronous; the temperature of the skin, evacuation of the fæces and urine, and sleep are natural. If the genitals or anus be irritated, both children appear to feel it equally.

Since the above was in type, the intelligence of the death of this child has reached us. The head of the right side had been christened Ritta, that on the left Christina. Ritta had been ill for three days, and her illness did not appear in any degree to influence the health of Christina, so that at the moment when Ritta died, Christina was hanging on the breast of her mother and playing with her face. But suddenly she let go, heaved a sigh, and died.

The following are the most interesting details of this truly curious autopsy:—

Upon inspecting the chest, the lungs were found in a healthy state, and of a pretty regular conformation. The right lobe of the lungs of Ritta, and the left one of Christina, were evidently cramped in their development; they were consequently more contracted than their other moiety.

The pericardium was single, but enclosed two hearts so closely connected and bound together, that during life the peristaltic motions must have been simultaneous, and consequently confounded. This explains why the stethoscope transmitted but the sound of a single organ of circulation, and shows why, when life ceased in Ritta, Christina was likewise obliged to lose her's; the beating of the heart of one being locked or enchained by the immobility of the other's heart.

The organs of digestion were double, as far as the cœcum. From the cœcum, as far as the anus, there was but a single duct or passage.

There were two livers, but they united into one.—The uterus was likewise double.

The opening of the body of Christina-Ritta has not furnished any very precise idea of the nature of the disease by which death was produced. A slight adhesion of the posterior part of the pleura of the right side, with the emphysema of the lungs, indicated the existence of an inflammation of that membrane, but neither intense nor extensive, and not such as could have produced immediate death.—Death might rather, perhaps, have been imputed to a considerable accumulation of feculent matter in the rectum. Nothing could have been more easy than to have removed this accumulation, which has produced such an unfortunate result.

The remote causes of the disease by which death was produced may doubtless be traced to the delicate constitution of Ritta, and to exposure to the first colds of winter in apartments very imperfectly heated. It was with difficulty that Ritta supported the fatigue of travelling, while her sister seemed to suffer no sort of inconvenience. In the towns where they were well received, and where they could stay a long time, Ritta recovered her health with surprising rapidity, so rapidly that M. St. Hilaire says he has observed nothing equal to it in an isolated being, and ascribes it to the support received from her sister Christina, who being endowed with a very robust organization, had no doubt greatly contributed to these sudden restorations. Their stay at Lyons had been very favourable to their health. They seemed even well on their arrival in Paris, although Ritta appeared to be fatigued: but here when the severity of the season required the greatest care, the relatives, deceived in their hopes by the interference of the authorities, were reduced to a mode of life inconsistent with the care which was necessary for the preservation of their child.

It is known that Ritta only was unwell, and that Christina, whose health was good to the end, was suddenly struck dead, at the moment when her sister expired. The perfect health of Christina is the more surprising, when it is considered that the accumulation or interruption to which the death is ascribed, was situated in that part of the intestines which was common to the two sisters, but it must be remembered, that an interruption which may be slight and indifferent to a well-constituted and even vigorous body like that of Christina, might be serious to one so debilitated as that of her sister.—The heart of Ritta, compressed by that of Christina, and otherwise straightened in its movements, found itself incapable of reacting against the congestion produced by the very considerable interruption in the great intestines.

Christina-Ritta was evidently not destined to attain an advanced age. There was too much inequality between the two parts, but every thing indicates that she might have lived for several years.—Her premature death has deprived the world of many interesting observations which might have resulted from the development of two intellects existing, if not in a single organization, at least in two organizations so closely united. Of how many phenomena, psycolo-

gical, physiological, and pathological, are we deprived?—The study of a being like this, arrived at an age when she could account for her ideas and sensations, would be one of the most interesting which could be offered to the meditation of the philosopher.

The possibility of the prolongation of the life of such a being to mature age appears to be demonstrated, and there is no longer any reason to doubt the general veracity of the authors who have written on such subjects. Some information has lately been given of a bicephalous girl who died in Hungary, at the age of twenty-one, the death of the two parts not being instantaneous, as in the case of Christina-Ritta, but an interval of five minutes having occurred between the death of the one and the other.—*Amer. Jour. of the Med. Sciences.*

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6. *Experiments proving that the Nervous Tissue possesses the property of developing the Galvanic Fluid.* By Dr. Louis Beraudi, of Turin.—The numerous experiments of Wilson Philip, Edwards, Vavasseur, Aldini, Magendie, Krimer, and Wienhold, established the fact that the nervous system developes galvanic phenomena. Dr. Beraudi has instituted a series of experiments for the purpose of collecting the galvanic fluid that is thus formed, that no doubt may any longer attach to so curious a fact. The following are the results of these experiments:—

1st. Dr. B. exposed the right crural nerve of a living rabbit, the temperature of the aparment being raised to 15° Reaumur. After having carefully removed all the blood, three small and very fine steel needles were introduced into the nerve; they were separated by a small stick of sealing-wax placed horizontally. The animal evinced great pain, and at the end of a quarter of an hour it was found that the needles had not acquired the power of attracting small pieces of paper. The same needles were again introduced into the nerve, and, upon being withdrawn at the expiration of a quarter of an hour, as before, each needle was found slightly to attract small particles of rust of iron, whilst the bits of paper remained unmoved.

2d. The same experiment was repeated, on the same day, on another rabbit, but without a similar result. It had been observed that the development of the electric fluid diminished in a direct ratio to the slowness of the circulation. Pulmonary insufflation was therefore had recourse to, and at the expiration of ten minutes the magnetic property of the needles was very manifest. From this fact Dr. B. concluded that the strength of this property of the needles, produced by the nervous tissue, was in proportion to the greater or less quantity of blood exposed to the contact of the air. This remark was communicated to Professor Rolando, who recommended Dr. B. to vary the experiment, by causing the animal to respire different gases.

3d. The apartment being of the same temperature as above-mentioned, it was found that, by introdueing into the lungs oxygin, hydrogen, and azote, the magnetic property developed in the nerve was

very powerful after the insufflation of the first of these gases, weaker from that of the second, and not at all apparent from that of the azote.

4th. After having divided the spinal marrow of a rabbit, between the third and fourth cervical vertebræ, needles were introduced as before into the crural nerve; but in neither was the magnetic property detected, until a certain quantity of oxygen had been introduced into the lungs; it then was very manifest.

5th. The right optic nerve of a rabbit was exposed, and one needle introduced into it; which was withdrawn in eight minutes, and exhibited no magnetic property. The animal was then made to respire oxygen gas, by means of a bladder which was filled with it, but still no magnetic effect was produced. Neither hydrogen nor azotic gas produced any effect. At the expiration of an hour, the same needle was introduced into the crural nerve of the same rabbit. The animal was again made to respire oxygen gas, and a weak magnetic property was then perceptible in the needle; which was no longer developed when the experiment was repeated after having divided the spinal marrow at the part above-mentioned.

6th. The same experiment was repeated, in presence of Professor Rolando, upon the olfactory nerves, but without any result.

7th. A ligature was placed upon the crural nerve of a rabbit, into which needles were introduced *below* the ligature. No galvanic phenomena were produced. The same was also the case after the division of the nerve.

8th. Dr. B. after the manner of M. Vavasseur, endeavoured to ascertain whether this property, which was imparted by the nerve, could be communicated at any distance. To determine this fact, the crural nerve of a rabbit was laid bare and divided; and the extremities of the nerves then separated to a distance of about four lines. A needle was placed in the inferior portion of the nerve, and it was found that it had, in a minor degree indeed, acquired the magnetic property. This result confirmed Dr. B. in the opinion that the nervous influence is developed at some distance, which he had before presumed from finding the magnetic property of the needle diminished and disappear from the inspiration of hydrogen and azote.

As all philosophers believe that the galvanic fluid is capable of imparting to iron a magnetic property, and as the identity of these two fluids is admitted, the following results are deducible from the above experiments:—

1. Electricity developes itself in the nervous system.

2. The fifth and sixth experiments confirm the theory of Prof. Rolando.

3. Respiration appears to have considerable influence upon the development of the galvanic fluid in the nervous system.

4. It may be presumed that the galvanic fluid does not emanate from every part of the nervous system, but perhaps from the cerebellum, as Mr. Rolando supposes.

Lastly. That neither the olfactory nor optic nerves concur in the development of that fluid.

Dr. Beraudi does not claim the merit of first conceiving these experiments. He is aware that Beclard had before ascertained and announced, that a needle becomes magnetic from being introduced into a nerve.—*Nouvelle Bid. Med. from the Annali Univer. di Med. May*, 1829.

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7. *Hydrophobia.*—One of the late numbers of *Graefe and Walther's Journal*, contains an account of some interesting experiments on rabid animals, by Dr. Hertwich, professor at the veterinary school at Berlin. The following are the principal results that he has obtained.

1. Of 59 dogs who were inoculated, 14 became affected with real rabies.

2. In those cases where the inoculation failed, no assignable cause of the failure could be discovered. There exists, accordingly, a peculiar disposition for the virus of rabies, as for that of other contagious diseases. (A mastiff, four years old, went through regular series of experiments without any effect being produced; while seven other dogs, who were inoculated with him, and in the same manner became rabid. Some dogs were several times inoculated before any contagion took place; in others, this effect was observed after the first experiment.)

3. It appears, accordingly, that *in cases of doubtful rabies, one or two accidental or artificial inoculations are not sufficient to serve as negative proofs of the existence of rabies.*

4. No communication of the disease ever took place by the perspiration; the contagious matter of rabies cannot, therefore, be of a volatile nature.

5. *Its vehicle is not only saliva and the mucus of the mouth, but also the blood, and the substance of the salivary glands.* It does not appear to exist in the nervous pulp.

6. The power of infecting exists at every period of the confirmed disease, and *even for about twenty-four hours after the death of the animal.*

7. The virus of rabies *appears to be inactive if administered internally:* of 22 dogs who were made to swallow it, none took the disease.

8. The application of saliva to fresh wounds appears to be as often followed by rabies, as the bites of rabid animals.

9. It is, consequently, beyond all doubt, that the disease is neither produced by the lesion, according to Girard's opinion, nor by the fear of the patient, as has been repeatedly asserted.

10. The opinion of Bader and Capello, that in dogs who had become rabid from the bite of an animal primarily affected with the disease, the saliva did not contain the contagion; and that it existed only in primary rabies, has been proved, by several experiments, to be erroneous. (This perfectly agrees with Magendie's experiments, who, having inoculated a dog with saliva of a patient affected with hydrophobia, the animal became rabid after a month, and bit two oth-

ers, who were also infected, from these last, no further contagion was observed.)

11. During the period of the inactivity of the virus, there is no morbid alteration observable, either locally or in the general health of the dog thus infected, nor does the lower surface of the tongue ever exhibit vesicles. There exists, accordingly, no precursory symptoms as in other contagious diseases.

12. The disease generally breaks out within fifty days after the inoculation, or the infliction of the wound; Dr. Hertwich never observed it occur at a later period.

13. Inoculation or infection from animals affected with fierce rabies, very often produces the other modification of the disease, and *vice versa*; they are, consequently, only different forms of one and the same disease.

14. It is an erroneous opinion, that healthy dogs were able to distinguish those affected with rabies by the smell; this is not the case, nor do they abhor food mixed with the secreta or excreta of rabid dogs.—*Amer. Jour. of Med. Sci.*

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8. *On the Effects of Camphor in a healthy individual.* By Dr. Lucas Scudery, of Messina.—It is extremely difficult from the difference of action of the same medicine upon different individuals, the age, sex, constitution, &c. of the individual influencing the effects, to arrive at any general results. The following experiments on camphor appear, however, to have been made with great care; they were performed in the presence of several persons, who themselves submitted afterwards to experiment; so that confidence may be reposed in the results.

From ten to fifteen grains of camphor taken into the stomach, produces in from fifteen to twenty minutes a decided acceleration with increased force of the pulse, which continues permanent for one or two hours. There are produced at the same time redness of the face, dryness of the skin, head-ache with vertigo, increased sensibility to light, and brightness of the eyes; injection of the conjunctiva; stricture of the chest; odour of comphor in the breath; desire to urinate; urine smelling of camphor, passed in small quantities, and producing a burning in the urethra; constipation. These symptoms generally disappear at the end of about four hours; during the night the sleep is disturbed by voluptuous reveries, with erection of the penis, and pollutions. These effects, which were produced in five successive experiments, were more decided when the camphor was taken dissolved in alcohol; their intensity was also in proportion to the increase of the quantity taken; its effects were also then more prolonged, and accompanied with feverishness. M. S. has swallowed progressively as much as two scruples of camphor at a time, in many experiments. Drs. Pasquali, Mazzetti, and Gassoni repeated these experiments, and with the same results.

A month after these experiments, Dr. Scudery wishing to ascertain what modification nitre would produce in the action of camphor,

swallowed two scruples of the latter article, and five minutes afterwards he took two drachms of nitre dissolved in water. He experienced almost immediately afterwards nausea, with chilliness, and an abundant salivation. In about ten minutes the pulse lessened, but before twenty-five minutes, it had acquired new force; there supervened slight head-ache, confusion of ideas; the pain in the head gradually augmented, the light appeared stronger than natural, and objects clearer; the conjunctiva was injected; face warm; desire to urinate; pulse vibratory and frequent. In this state, Dr. S. took another solution of two drachms of nitre: immediately afterwards the nausea reappeared, but the head-ache and other phenomena disappeared: after some minutes they reappeared, but slightly. Half an hour afterwards, he passed a small quantity of urine without pain; pulse natural; during the remainder of the day no phenomena appeared, he passed a calm night; urine abundant, and depositing a sediment; he had two alvine evacuations. These experiments, like the preceding, were frequently repeated with different doses of nitre and camphor; and Mr. Mazzetti also made some trials with them.

From all these experiments, Mr. Scudery concludes—1st. That in the dose of from eight to ten grains, camphor produces in a healthy man scarcely any appreciable effect; and that in diseases it should be given to the extent of two scruples, but in divided doses. 2d. That one of the effects of camphor upon the system, is to produce an excitation, characterized by an acceleration of the circulation, and an elevation of animal heat. 3d. That it produces no irritation of the gastro-intestinal mucous membrane, that it excites neither pain nor borborygmus, but that it constipates. 4th. That it acts specially upon the genitourinary organs, augmenting the energy of their functions; voluptuous reveries, erection of the penis, sensation of heat in the urethra when urine is voided, are proofs of its stimulating action. 5th. That vertigo, the vivid impression of light on the eye, head-ache, acceleration of the circulation and excitation of the genito-urinary organs, &c. announces that camphor acts directly upon the brain and the great sympathetic. 6th. That the stimulating effect of camphor is augmented by uniting it with another stimulant, as alcohol; whilst nitre, on the contrary, diminishes its stimulating properties.—*Arch. Gen. from the Annali Universali di Med. Milan, June* 1829.

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9. *Treatment of persons poisoned by Opium.*—M. Orfila recommends when persons have been poisoned with opium, and this poison has not been absorbed or ejected by vomiting, that the patient should be made to drink, before an emetic is administered, a strong decoction of nut-galls, which substance decomposes the opium.—*Nouvelle Biblioth. Med. July*, 1829.

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10. *Treatment of persons poisoned with Hydrocyanic Acid.*—The researches of M. Orfila has led him to recommend the following treatment of persons poisoned by hydrocyanic acid:—1st. To

give an emetic if the poison is still in the stomach. 2d. To make the patient inhale ammonia or better chlorine; to combat the cerebral symptoms by bleeding, and leeches applied behind the ears. 3d. To employ cold affusions, which are very useful. M. O. says that unless the dose of the poison taken is very large, these remedies will be successful.—*Ibid.*

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11. *Mode of stopping Hæmorrhage by twisting the mouths of the vessels.*—M. Amussat communicated to the Royal Academy of Medicine, at their meeting of the 16th of July last, this method of arresting hæmorrhage, which was, however, not unknown to the older surgeons, and is at present practised in veterinary surgery.—Though we cannot for a moment believe that this mode will ever supersede the use of the ligature as proposed by M. A. we nevertheless think the views of M. A. of sufficient interest to lay them before our readers.

Reflecting on the well known fact that lacerated wounds are frequently not followed by hæmorrhage, M. Amussat conceived the idea, that methodically twisting arteries might perhaps be attended with the same result. A number of experiments were accordingly made on dogs, rabbits, horses, &c. and the following proceeding found to answer the purpose. An artery being cut across, the extremity is seized by means of a pair of forceps, the branches of which are closed by a spring. The end of the vessel is dragged out from the surface, for the distance of five or six lines, disengaged from the neighbouring parts, then seized with the thumb and forefinger of the left hand, and twisted five or six times upon its axis by means of the forceps in the right. The twisting ought to be continued till the portion of the vessel in the bite of the instrument is broken. The end of the vessel now forms a cul-de-sac, which resists the impulse of the blood from behind, and is seen and felt to pulsate strongly.—The twisting appears to act by rupturing the middle and internal coats, which instantly retire into the interior of the vessel, and form a sort of plug or valve, whilst the vessel itself looks like a stump, enveloped and capped by the cellular membrane. If the vessel before being twisted is not seized with the left hand, it is injured up to the next collateral vessel. M. Amussat has tried the method twice on the human subject, once after extirpation of the testicle, and once after amputation, with success. Such is the substance of the first communication to the academy; in the second, some points are touched on more at large.

In the first place, the effects of torsion or twisting are the same on arteries and veins: secondly, simple torsion, when employed to prevent hæmorrhage from arteries of considerable caliber, should consist of ten half turns; thirdly, that twenty half turns completely rupture the artery; fourthly, that after the complete or incomplete section of an artery, the torsion should be made on each extremity; fifthly, that after a twisting methodically made we need never fear secondly hæmorrhage; sixthly, that torsion employed on the arteries

of the dead human subject is attended with exactly the same effects, as to the vessel, as in living animals, namely, the rupture of the inner coats and their retraction within the arterial tube, whilst the cellular membrane round then forms a kind of *capachon;* seventhly, that if the arteries are ossified, torsion breaks them; eighthly, that if we inject liquid into the twisted artery with whatever force we please, it does not escape by the twisted extremity, though sometimes the retracted inner tunics are driven out by the fluid, and the cellular membrane more or less distended; ninthly, that torsion has *all* the advantages of the ligature, *without* its inconveniences, and should instantly be adopted by army surgeons in particular.—*Journal des Progres, Vol. XVI. & Journ. Hebdom. Nos.* 43–44.—*Am. Jour. Med. Sci.*

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12. *New mode of employing the Nitrate of Silver as a test for Arsenic.* By PATRIC FORBES, Professor of Chemistry, King's College, Aberdeen.—"The following mode of procedure," Dr. Forbes says, "avoids all the sources of ambiguity arising from the presence of muriatic acid, or any of its combinations, or of the alkaline phosphates; and it is so simple, that any person, at all capable of performing chemical experiments, may conduct it in a satisfactory manner.

"1. The suspected liquid must be carefully filtered, and if very viscid, may be diluted with *warm* distilled water. If after filtration it has colour, it should be diluted with distilled water till the colour has *just* disappeared. A solution of nitrate of silver, (which precipitates free muriatic acid and all its combinations, decomposes all the alkaline phosphates, and precipitates the phosphoric acid in combination with the silver, but has no effect by simple affinity on arsenious acid,) is then to be dropped into it till all precipitation ceases. The liquor must again be filtered, and solution of nitrate of silver added, when no precipitate will appear if sufficiency of nitrate of silver has been formerly used. If any precipitate do appear, an *excess* of nitrate of silver must be added, and the liquor again filtered. Take now a small glass rod, and dip the point of it in a solution of pure ammonia, and just touch the surface of the liquor with it; in a few minutes, if any arsenious acid be present, abundance of the well-marked yellow precipitate of arsenite of silver will diffuse itself down through the liquor.

"2. Great care must be taken to add very little of the pure ammonia. The reason is, that the pure ammonia in excess has the power of dissolving the arsenite of silver. This property of ammonia affords, therefore, a second decisive test; for, after the precipitate has been fully formed, it is only necessary to add ammonia in excess, when, if the precipitate be arsenite of silver, it will on stirring be perfectly dissolved, and the liquor will appear colourless as before.

"3. By adding nitric acid to this colourless liquid till the ammonia is neutralized, the precipitate of the arsenite of silver may be again made to appear, which affords a third proof of the nature of the precipitate.

"4. The precipitate may now be collected, mixed with black flux, (both being made quite dry,) put into a glass tube, and the arsenic sublimed and condensed in its metallic state.

"It will be observed, that I have not directed the contents of the stomach to be boiled before the test is applied. The reason of this is, that it is wished to prevent the union of the arsenious acid with any free alkali which may happen to be accidentally present, which would prevent the success of this process. The application of *warm* distilled water on the contents of the stomach in the filter will, however, be found sufficient to carry along with it all the arsenious acid, and will not in any way interfere with the future steps of the analysis.

"The use of nitrate of silver employed in the above manner in the detection of arsenious acid recommends itself by its simplicity, and by the ease with which the substances employed may at all times be procured. But it by no means supersedes the employment of sulphuretted hydrogen, which also affords excellent indications of the presence of this poison. Every liquor supposed to contain arsenious acid should be subjected to both these reagents; and if both these tests exhibit the appearances which ought to follow their use if arsenic be present, there cannot remain the smallest doubt on the mind of the analyst, and he will be enabled to give his testimony with the most unhesitating confidence.

"If any one wishes to satisfy himself of the accuracy of the method now detailed, he has only to make a mixture of any muriates, alkaline phosphates, solution of arsenious acid, decoction of onions, coffee, &c. and to proceed as above directed.

"It deserves attention that the precipitate must be guarded from the *direct rays* of the sun, which will immediately turn it black from the presence of nitrate of silver and vegetable matter."—*Edin. Med. and Surg. Jour. Oct.* 1829.—*Ibid.*

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13. *Power of Sulphate of Quinine in accelerating Mercurial Action.*—Dr. Harty of Dublin has inserted in the Edinburgh Medical and Surgical Journal for October 1829, a letter, in which he offers a few remarks on the power of sulphate of quinine in accelerating mercurial action. The first cases in which he perceived this effect occurred among the female convicts in Richmond Bridewell. The disease was ague. He administered to the patients the sulphate of quinine, "directing at the same time the occasional use of the "*house pill*" consisting of calomel and scammony. Though I had seen sudden ptyalism excited by a few doses of these pills in a few of the female prisoners, I was yet much surprised at the rapidity and severity with which, on this occasion, almost all those were so assailed who were taking the quinine." Dr. Harty witnessed the same effect in the male prisoners of Newgate. In some of these he found that the quinine re-excited the mercurial action after it had apparently ceased. He details the two following cases in exemplification of these facts. *Case* 1. "A boy four or five years of age, previously very healthy, was seized with severe tertian. The tongue being foul and the

belly full, directed three grains of calomel, which purged him well and relieved him much. I then administered the quinine in solution, and in about six days I repeated the calomel with similar good effect, still continuing the quinine. The ague speedily ceased, but at the expense of the worst ptyalism with ulcerated and everted gums I had seen for a long time. He did not entirely recover from its effects at the end of six weeks." *Case* 2. "A medical friend to whom I had communicated these facts, having been seized with quotidian, employed the bark liberally, and then the sulphate, without any previous use of mercury, which he dreaded from the readiness with which it usually affected his gums. The quotidian accessions continuing, though with abated violence, and the feces appearing of a highly bilious character, he was induced to take five grains of Plummer's pill (containing one of calomel) with the intention of repeating it daily. In less than six hours after the first dose, he distinctly felt the mercurial action establishing itself in the gums, and could scarcely credit his feelings until the facts already detailed were recalled to his recollection."—*North Am. Med. and Surg Journal.*

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14. *Tetanus cured by the Acetate of Morphia, applied externally.* Omodei's Annals for May 1829, contains the details of a case of tetanus, in which Dr. G. Cerioli of Cremone, resorted with the fullest success to the acetate of morphia applied to the denuded skin. It does not appear that the disease was completely developed, as the abdominal muscles are only said to have been spasmodically contracted, and those of the extremities and body only momentarily so. Trismus was complete, as it was with the utmost difficulty that the mouth could be opened. After using without success a variety of means, as blisters to the wound, cataplasms, opiate and camphor liniments, acetate of morphia administered internally, bloodletting, leeches, sudorifics, &c. Dr. Cerioli directed a blister to be applied to the back of the neck, and a quarter of a grain of the acetate of morphia to be sprinkled on the denuded skin. The application was commenced on the first of November, about ten days affer the appearance of the tetanic symptoms. On the 10th of November the patient was so much better, that the remedy (the dose of which had been increased a few days before) was discontinued. On the 16th the patient was discharged cured.

While on the subject of tetanus we must mention that at a meeting of the Royal Academy of Medicine, Mr. Lisfranc presented a man whom he had cured of the traumatic form of the disease. In this case emprosthotonos was completely formed, and in a few days tetanus became general. The treatment, which lasted nineteen days, consisted in the following means: 1. Eight copious venesections.—2. Seven hundred and ninety-two leeches (equivalent to upwards of two thousand of our own) applied along the spine, with the exception of fifty, which were directed to the epigastrium, with a view of removing gastric irritation manifested at one period of the disease. 3. Several full baths. 4. Laudanum injections, twice a day.

On the twenty-fourth day after the appearance of the disease, the patient was pronounced cured, and a few days after took a walk in the court of the hospital. Notwithstanding the copious abstraction of blood to which the patient was subjected, the pulse retained its strength, and no signs of debility were noticed. We are indebted for this article to the Journal des Progres, No. 16.—*Ibid.*

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15. *Dr. Wedemeyer on the Circulation.*—Dr. WEDEMEYER published a book at Hanover, in 1828, on the subject of the circulation. The following are some of the results obtained by him.

1. In the natural state of pulsation of the arteries, the sort of contraction obtained by Dr. HASTINGS, by the application of stimulants, and noticed by JOHN HUNTER and some other physiologists, can never be observed.

2. BICHAT and PARRY are right when they assert that at each pulsation there is always a slight augmentation of the calibre of the artery; but this increase is so slight that it can be with great difficulty appreciated.

3. All the phenomena of the arterial pulse may be imitated by injecting with a syringe, successive jets of water into the arteries, even several hours after death.

4. The pulse is caused entirely by the impulsion communicated by he heart to the blood; an impulsion by which the artery is partly dilated and partly moved from its place.

5. All the phenomena of the arterial circulation may be referred to the elasticity of the coats of this order of vessels.

6. Lastly, the great arteries contribute to the movement of the blood only in this, that they re-establish, or return by means of their elastic coats, the force employed in dilating them.—*Archives Aug.*

In the Archives for September there is a continuation of the notice of Dr. WEDEMEYER's work. Dr. WEDEMEYER, says the writer in the Archive, seems inclined to adopt the singular opinion, omitted by GRUITHUISEN, DOLLINGER, and OESTERREICHER, on the origin of the blood-globules, which is, that they are, in great measure, formed of globules detached from the parenchyma of the various organs. These *savans* maintain that the globules may not only be seen passing from the *last capillaries* into the substance even of the tissues in which the vessels are distributed, but also that the globules, which for a certain time had constituted part of any tissue, may be seen returning to the general circulation by entering the nearest capillary vessel: whence they conclude that the blood is elaborated in the proper parenchyma of the organs. Dr. WEDEMEYER, admitting that the chyle contains globules, and that it is the manifest source of nutrition and growth, cannot deny that it must play a principal part in the hæmatosis—yet remarks that, nevertheless, the globules are not immediately formed there, but only after having undergone some preliminary metamorphosis in the substance of the tissues.

For our own part, we have always supposed that if globules enter as a component or constituent part into the chylous fluid, and do not

find their way into it by accidental absorption or transfusion, the absorbent vessels must be regarded as possessed of the power of communicating, if not the first, almost the very first vital properties to dead matter. A man may dine on a boiled potato or a roasted turkey, both of which specimens of matter are doubtless as completely divested of life as any stone or clod; and in less than two hours a good part of the potato or turkey shall be found restored to the enjoyment of vital properties as schyle globules, to be soon rendered more vital as blood globules, and perhaps to attain to an additional grade by being deposited as component part of a tissue; now the change from the state of boiled potato to that of retina, or sympathetic nerve, or medulla oblongata, like a succession of *avatars*, leads only to perfection, and if we hoid to our solidism, we shall continue to believe that the state of *deposit* as tissue is the highest vital state to which matter can attain; consequently, the blood globules, being less vital, less perfected, are not identical with the globules of the ultimate fibre; we have reason therefore to believe that the blood globules are not constituted out of the detritus of our organs, or their effete portion.

In regard to the structure of the minute vessels, Dr. WEDEMEYER says that the white elastic coat, so visible in the large arteries, accompanies the small branches, and is discoverable in tubes whose calibre is only one-sixth of a line; but in certain states of minuteness, both the elastic and lining coats disappear entirely, and the small vessels are then only so many canals, formed in the substance of the tissue, and wholly without any proper membrane, or membrane of their own; their coats consisting simply and solely in the tissues in which they are distributed. This opinion he attempts to fortify in the following manner: 1. It is impossible to discover, even with the microscope, any membrane interposed between the parenchyma of the tissue and the blood that moves in its capillary vessels. To this it might be objected, that the vessels are perfectly transparent when reduced to so small a size, (even the large veins are translucent) and consequently they cannot be seen, while the opaque blood in them is clearly seen. The pericardium is said to be so transparent that the heart is visible as clearly through it as the iris through the cornea.— 2. The facility with which certain globules are seen to detach themselves from the current, or mass in which they were moving, and go to mingle with the globules which constitute the adjacent tissues.— This we cannot adopt as proof of a parenchimal circulation, inasmuch as we have often with the microscope seen that a vessel capable of admitting only one globule into its calibre, has suddenly become enlarged so as to admit two or more in rank; and also, a vessel freely admitting a stream of globules, in what may be called single file, has become suddenly so contracted as to deny entrance to them entirely; it is this liability to alternate enlargement and diminution that has probably deceived both Dr. WEDEMEYER and his supporters. 3. The rapidity with which the blood opens to itself new passages in the midst of the tissues. 4. The impossibility of conceivtng how

nutrition and absorption should be effected through the parietes of vessels. Dr. WEDEMEYER, in our opinion, removes no difficulty by supposing a parenchymal circulation. When blood or serum is extravasated, we know very well that the result is an acchymosis or anasarca, which is slowly removed by a long process of absorptions: and yet the gentleman leaves ten million capillary vessels opened in the midst of all the tissues, to pour out their fluid ad libitum. The thought is one that we cannot entertain for a moment.

It is best to adhere to the ancient doctrine, that extravasated blood is blood escaped from its vessels; if Dr. WEDEMEYER's opinion be correct, we cannot conceive how the blood in a blushing cheek, which ought to be considered as extravasated, could so soon give place to, or succeed to a deadly paleness. Let us not *finesse* too much in anatomy, it is enough to play *ad libitum* in our pathology and practice. We should be glad to retain one part of our science in the domain of those that are denominated exact.—*Ibid.*

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16. *Treatment of Gonorrhœal Ophalmia.*—The *Clinique*, for August 22d 1829, contains an account of the mode of treatment employed by Dr. EDWARD EISSEN against gonorrhœal opthalmia.—Not having that journal before us at this moment, we make use of an extract from the article in question, published in the September number of the *Archives Generales.* Dr. DUPUYTREN, it must be premised, treats this kind of opthalmia by venesection, leeches to the inferior palpebra, and next by insufflations of calomel, and the application of laudanum to the eye. Dr. EISSEN regards the second part of Dr. DUPUYTREN's treatment as perturbative and dangerous, and attributes to it the ulceration of the cornea and the coagulation of the humours situated between the laminæ of this membrane.—The method employed by BEER, RUST, ASTLEY COOPER, AND HESSERT, appears to him far preferable. It consists in combating the inflammation by energetic antiphlogistic means. Bleeding is to be pushed very far, but leeches to the lid must be avoided, on account of the irritation produced by the bite of the animal. Cups to the temples may be advantageously substituted. As soon as the first indication is fulfilled, a revulsive action is to be obtained by blisters to the arms or back of the neck, and particularly by the use of calomel given in large doses, and in combination with some active purgative, so as to guard against a salivation. To obtain a full effect from this revulsion on the alimentary canal, it is necessary to continue it until it produces an artificial disease, against which the organic reaction is necessarily called, which alone can occasion a sufficient reaction. This artificial affection is announced by borborygmæ, by green and fetid stools, by a pallid countenance, pinching of the alæ nasi, coldness of the extremities, and a metallic taste in the mouth, which the patient complains that he experiences."—The only local application to be employed consists in tepid mucilaginous decoction. Dr. EISSEN adds that astringent collyria are only admissible when the inflammation has completely disappeared, and it

is simply necessary to produce the contraction of the distended vessels of the conjunctiva.

After noticing this proscription of opiate stimulants and astringents in the gonorrheal form of conjunctivitis, our readers will be amused by glancing over the following article, in which will be found recommended for another form of the same disease, a widely different plan of treatment. We derive from these two articles one of two lessons: either the two forms of opthalmia are so dissimilar in nature as to require an opposite treatment, or the same form of disease may get well under very dissimilar remedies.—*Ibid.*

17. *Treatment of Opthalmia Neonatorum.*—Dr. Wishart, surgeon to the king in Scotland, has published in the October number of the Edinburgh Medical and Surgical Journal, some observations on the purulent opthalmia of infants. We shall here present a few words on the mode of treatment he recommends, premising, however, that he considers the disease as in almost every case connected with a leucorrhœal discharge in the mother. The author remarks that the following points of practice are to be attended to. "To remove if possible the leucorrhœa in the mother previous to delivery, and if this cannot be effected, to remove artificially as much of the discharge as possible from the vagina at the time of delivery, and to pay particular attention to the eyes of the child, by washing them carefully immediately after it is born." The purulent opthalmia he thinks has a fixed course which cannot be interrupted without injury to the patient. If the patient comes under his care in one or two days from its commencement, he immediately washes away the puriform matter which glues down the eyelids with a little water, and then with a small conical pointed ivory syringe injects the following eye water, at first diluted with a little warm water.

R. Sulph. Zinci. ℈i.
Aquafontis, ℥x.
Solve et edde.
Liquoris sub acetatis Plumbi. ℥ss.
Tinct. Camphoræ, ℥i. or ℥ii.
Misce et cola.

This is repeated three times a day in ordinary cases, or every hour or two if the quantity of the discharge is very great and is rapidly collected. If the child continues to cry more than ten minutes, the solution must be diluted. The discharge must be carefully washed away as soon as it is observed by a little of the eye water, and at night a little of the ointment of the oxide of zinc is insinuated between the eyelids. "In some cases, I have seen considerable benefit from the application of a single leech to the outer angle of the eye, especially when we suspect the inflammation is extending to the eye ball." In a few days the swelling and redness of the eyelids diminish, and the ointment may be applied after using the eye water. If the lids are very turgid they must be freely scarified, and the bleeding encouraged by fomentations. When the swelling of the eyelid sub-

sides, and the discharge acquires a watery appearance, and the child opens its eyes better, the collyrium may be changed to a weak solution of the muriate of mercury with the addition of the vinous tincture of opium. The red oxide of mercury ointment may be substituted to the other ointment, and applied three times a day. At the end of a month the use of the syringe may be discontinued, and the collyrium merely dropped in the hollow at the inner angle of the eye, whence it can be easily made to pass under the lid.

Considerable benefit will be derived from fomenting the eyelids, for ten minutes three times a day, and at night with the same collyrium. The cloths must not be allowed to become cold.—*Ibid.*

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18. *Iodine in Scrofula.*—At a meeting of the Academy of Sciences of Paris, held on the 17th of August 1829, Mr. DUMERIL, in his name and that of Messrs. MAGENDIE and SERRIS, read a report on a memoir presented to that body by Dr. LUGOL, one the physicians of the hospital Saint Louis, on the use of iodine in scrofulous diseases. We have only room to state, that from the 10th of August 1827 to the 31st of December 1828, Dr. LUGOL submitted one hundred and nine patients affected with the various forms of scrofula to the use of iodine. On the last date mentioned of the whole number, thirty-nine were still under treatment, they had left the hospital much relieved, four were not in the least benefitted by the remedy, and finally thirty-six had left the establishment completely cured. Among the cases treated and cured were several of a very bad kind. Dr. LUGOL made use of a solution of iodine in water, in the proportion of one-half or two-thirds of a grain, or one grain in a pound of water, with the addition of twelve grains of common salt. The whole to be taken in one day. He commenced with the first, and generally prescribed the second quantity specified after using the other two months. Besides the internal use of iodine, he employed the remedy externally in the form of wash or ointment.—*Ibid.*

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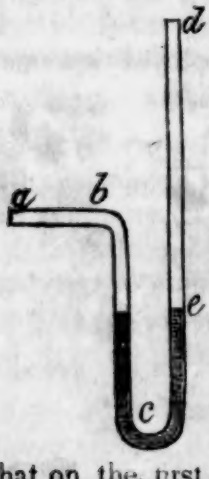
19. *On the Action of the Arteries in the Arterial Circulation.* By M. POISEUILLE.—By a series of well-devised, and apparently accurate experiments, M. P. has arrived at the unexpected result, that the force of the blood in the arteries will support a column of mercury of the same height with whatever part of the course of the arterial circulation the column is placed in connexion—whether for example it is connected with the origin of the carotid, or with a branch derived by repeated subdivision from the crural artery. And consequently he concludes that the force with which a molecule of blood moves is the same throughout the whole arterial circulation. Following out these researches, he proceeds to inquire in what manner the original impulse communicated by the heart, is transmitted unimpaired to distant parts of the circulation, notwithstanding the retarding tendency of friction, and the yielding of the parietes of the vessels.

His first object here was to ascertain whether the arteries are dilated by the stroke of the heart, and impulse communicated to the blood, and what the amount of the dilatation may be. It is well known that by most physiologists a very extravagant idea used to be entertained of the amount of their dilatation; on the other hand, that the later researches of Parry, and other experimentalists have assigned exceedingly narrow limits to it; nay, that by one eminent physiologist, Bichat, it has been denied altogether. M. Poiseuille has determined the point by means of a very satisfactory set of experiments with an aparatus of his own invention, and has ascertained that dilatation is effected; but that it is so small as certainly to be indistinguishable in an artery by the unaided senses. This apparatus cannot be thoroughly described without a diagram; it will be sufficient, therefore, for us to mention, that it is so contrived as to contain about eight inches of the carotid artery of the horse in a vessel filled with water, and made water-tight, except at one point, from which a small horizontal glass tube issues, about an eighth of an inch in diameter. At each contraction of the animal's heart it was found that the water in the small tube advanced two inches and eight-tenths, and that it retired to its former place during the diastole of the heart. The diameter of the artery was seven-twentieths of an inch. Hence it may be calculated that at each pulsation its capacity was increased by about a thirtieth part.

Having ascertained this fact, M. Poiseuille goes on to inquire, whether the power which is expended by the blood in causing this dilatation is restored by the subsequent contraction of the artery.—For this purpose a portion of the common carotid artery of the horse, ten inches long, and seven-twentieths of an inch in diameter, taken immediately after death, was connected with the end *a*, of the tube, (see Figure;) a stop-cock, however, being previously fitted between *a*, and *b*. The other end of the artery was fixed on a tube of analogous construction, different in fact only in so far as the limb *c d* was inclined at about half a right angle instead of being vertical, and the stop cock was placed near the end *d*. The whole of the first tube, the artery and part of the descending limb *b c* of the second tube was filled with water, a little mercury then filled the curvature of the second tube, and the ascending inclined limb of that tube above the mercury was filled with water.—The stop-cock of the last tube being closed, and that on the first tube being opened, mercury was poured into the former by its end *d*, till the pressure on the artery amounted to ninety-five millimetres or about 3.8 inches. The stop-cock of the first tube was then closed, and that on the second tube was opened; upon which the water rose instantaneously in the latter, a portion flowed out at the top, and the remainder then sank a little, and assumed a fixed level. On making the necessary computations, M. Poiseuille



found that the point to which the mercury was raised in the second tube at the moment of the contraction of the artery indicated an elevation of one hundred and ten millimetres or 4.4 inches. Hence *the power with which the arterial coats contract upon themselves after being dilated, exceeds that which is expended in dilating them.* In the present experiment the excess was equivalent to six-tenths of an inch of mercury, or three-nineteenths more than the dilating force. In three other experiments, the excess of the column of mercury was 9-20, 14-20, 19-20 of an inch. When repeated with the artery of an animal which had been killed four days before, the excess was less than 4-20. It is evident, therefore, that whatever force the blood after issuing from the heart loses in consequence of its acting on yielding vessels, is completely restored by the elastic contraction of their parietes.—*Edinburgh Medical and Surgical Journal, July, 1829, from the Jour. de Physiologie, Jan. 1829.—Am. Journal of Medical Sciences.*

II. Analytical.

20. *Anticardial operation for aneurism.*—A peculiar *felicity* appears to attend the surgical operations of our distinguished countryman, Dr. Mott. In performing those formidable operations, which the most intrepid and skilful surgeons have attempted only with a faint hope of pointing out a remote prospect of success, or of directing others with greater certainty through the difficulties that surround them, his success has exceeded the most sanguine expectations of the profession.

A short historical notice of "Brasdor's operation," was given in the No. of this Journal for October 1829; and we are now gratified to inform our readers that it has been successfully performed in this country. From the account of the operation, published by Dr. Mott in the American Journal of the Medical Sciences, we make the following extracts.

Moses R. Gardner, ætat. 51, by profession a farmer, of sound constitution and good habits of life, applied to me some time in March for advice.

He gave the following relation of his case:—About three years ago, while occupied in removing a building, and compelled to lift heavy weights, he was attacked with pain in the upper and back part of the neck. This lasted until the month of January, when it ex-

tended to the right shoulder and arm, and continued until the following May; it then partially subsided, and he observed his voice was becoming hoarse, which he attributed to exposure and consequent cold. About eighteen months since, while shaving, he discovered a small swelling at the upper part of the breast bone, but did not remark any throbbing in it until some time afterwards. He had consulted a physician, but received no positive opinion on the case.

Upon examination, I found above the sternum a pulsating tumour, about the size of a pigeon's egg, spreading some distance under the clavicular and sternal portions of the right sterno-mastoideus muscle, in the course of the subclavian artery, and extending as low down upon the pleura as the second rib, compressing more or less the bronchial tubes, and producing on the least coughing or exercise a wheezing, not unlike that of asthma. He shrunk from the least pressure upon it; complaining of impeded respiration, followed by pain. Its pulsations were synchronous with those of the heart, and decidedly aneurismal.

Having tried a palliative course without benefit, he returned to the city on the 12th of September.

I found the tumour above the sternum had increased to the size of a large walnut, and upon a careful application of the stethoscope, it was evidently encroaching more upon the chest. The whizzing sound, (*bruit de soufflet,*) could be heard; thoracic viscera were sound, the respiratory murmur being distinct throughout. His respiration was very much impeded by speaking, walking, or coughing, and almost entirely suspended by the least pressure upon the tumour: the action of the right carotid was much more feeble than that of the left; no pulsation could be discovered in its branches; the right subclavian, external to the scaleni muscles, was natural, while the axillary and brachial arteries could hardly be felt; at the wrist no pulse could be found; the pulsations of the arteries of the left side were natural. His general health was good.

In reflecting upon this case, and comparing the relative situation of the parts, I was persuaded the aneurism was of the arteria innominata, involving the subclavian and the root of the carotid; having formed this conclusion, I considered it a proper case for the operation proposed by Brasdor, and recently so ably revived, and first successfully performed by the distinguished WARDROP, whose scientific researches and masterly views of this subject have since been so fully confirmed by himself and others.

I thought further delay unnecessary, and he being willing to abide by my judgment after having stated to him the chances of the operation, I resolved on its performance. From the evident interruption in the circulation of the right arm, and the apparent effort of nature to effect a spontaneous cure, I determined upon tying the carotid first, to observe the result, and afterwards to secure the subclavian, should it be required.

On the 26th of September I operated. The artery was taken up in the usual manner; no material change was observed.

The patient was kept for some time on a low diet; an occasional purgative was prescribed; and, as he had been accustomed to opiates, a tea spoonful of laudanum was permitted for a few nights. The unpleasant symptoms were immediately mitigated; the pulsation, soreness and tenseness of the tumour diminished; the voice became more natural, and the patient could be more in the recumbent position. On the 28th, the pulsation in the radial artery became very distinct, intermitting once in 10 or 15 beats; but it again became indistinct and gradually disappeared; and at the same time the arm became œdematous, and the patient complained of inability to use it. The ligature separated on the 16th, by which time the tumour and pulsation had disappeared.

22*d*.—Wound just healed; weakness of the arm very considerable; fingers very thick and clumsy; arm swelled and pits upon pressure; no pulse in the right radial artery: breathing very easy; cough and expectoration much less; can sleep easy in any position, which he has not been able to do for many months.

26*th*.—Left town this morning for his residence in New Jersey.

21. *Pyroligneous Acid in ulcers and gangrene.* In the last Number of the highly respectable periodical just quoted, Dr. Simons of Charleston, S. C. has inserted a short practical paper, on the use of pyroligneous acid in ulcers of a bad character and in gangrene, from which it appears to be a remedy of considerable power. The following are his remarks on the manner of using it:

There are two kinds of pyroligneous acid found in the apothecary shops; one is transparent, and when agitated, shows small crystals floating in it; the other is dark and smoky; both have the empyreumatic odour. The former is the kind I use, and is by far the best.

When I first used this acid, I diluted it with six times its quantity of water; but since I have employed it diluted with equal parts of water, gradually diluting as the sore assumes a healthy appearance, until it becomes as weak as one-twenty-fourth. It should always create a smarting sensation. The manner of applying it is to put over the ulcer some lint, which is to be kept constantly wet, and changed two or three times during the day, according to circumstances.—

The ulcer uitimately assumes red granulations resembling the inside of the pomegranate. If the acid be too strong, it will make it turn white, and assume the appearance of a slough.

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22. *Tartar Emetic Ointment in Chorea.* In the same Journal, Dr. Byrne of Baltimore, has reported two cases of chorea cured by frictions to the spine with tartar emetic ointment, as recommended by Dr. Jennen. In both, as soon as pustules made their appearance the disease subsided.

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23. *Sloughing of twenty six inches of Intestine.* In the Journal just referred to, Dr. Gaylord of Sodus, N. Y. has reported a case of intus-susception, in which a portion of intestine, measuring about 26 inches, sloughed off and was discharged *per anum.* The patient became extremely emaciated afterwards, and was affected with flatulence and intestinal spasms for a long time. A gentle mercurial salivation at length subdued these affections; and a state of tolerable health ensued, interrupted, however, by an occasional attack of colic.

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24. *Treatment of Pulmonary Consumption.*—In our last number we gave some account of a paper on this discourse, by the judicious and practical, Dr. Parrish of Philadelphia. In the January Number of the N. A. Medical and Surgical Journal, one of our most excellent periodicals, the Doctor has inserted another paper, from which we propose to make such extracts as will present the results of his ample experience.

My object in the present communication is to point out the course of practice, so far as this can be done in general terms, which, within my own experience, has proved most effectual as auxiliary to that great remedy, without which all the rest are nearly useless—exercise in the open air.

Though neither bleeding, nor any other mode of depletion, is at all adequate to the cure of the peculiar tuberculous disease of the lungs, which constitutes genuine phthisis, yet affections of an inflammatory nature occasionally arise in the course of the complaint, which demand an antiphlogistic treatment; as, if not relieved, they

might produce either immediately fatal effects, or at least aggravate the original pulmonary disorder, and accelerate its progress.—Thus a patient with consumption may be seized with ordinary catarrh, or pneumonia, to which the previously diseased condition of his lungs predisposes him, and to which the same condition imparts a character of peculiar danger. Under such circumstances, I do not hesitate to confine my patients, to put them on a low diet, to bleed them generally and topically, to apply blisters to their breasts; in short, to put into operation the whole system of treatment adapted to cases not complicated with phthisis; always, however, bearing in mind the importance of surmounting the new danger with as little loss of strength as possible, and thus preventing the old enemy from gaining any advantage. As soon as the catarrhal and inflammatory symptoms have disappeared, I advise the patient immediately to recur to the plan of exercise. Sometimes, when there is considerable pain in the chest, with but little sympathetic affection of the constitution, it may be proper to try the effect of general or topical bleeding, without confining the patient to the house, or in any way interrupting the course of exercise which may have been prescribed: but in these cases great care should be taken not to push the lancet further than is found to accord with the general strength.

Another condition of things frequently occurs in pulmonary consumption, which requires a temporary suspension of the regular plan of treatment; I allude to hæmoptysis. A few days of rest, however, with the use of bleeding, and other suitable remedies, will be found sufficient, in the majority of instances, to remove the complaint, and to place the patient in a condition to resume his former habits. There is danger in persisting too long in the treatment for hæmoptysis; and I have myself had reason to regret the fears which have sometimes caused me to confine the invalid beyond the necessary period. With my present convictions, I would rather incur the risk of a return of the hemorrhage by too early a resort to exercise out of doors; than by long confinement and a rigid diet, break down the energies of the system, and thus remove the only barrier which opposes the advance of the tuberculous disease.

Some years ago I was called to a very delicate female, who had been attacked very suddenly with hæmoptysis, and within a very short time had discharged as much as a pint of blood from her lungs. By bleeding, rest, an appropriate regimen, and other means usually employed in such cases, I succeeded, in the course of a few days, in arresting the hemorrhage: but hectic fever now made its appearance, attended with cough, and other smptoms strongly indicative of phthisis, which, in her case, was the more to be apprehended, as she had lost her mother with that disease. The winter was approaching, and if any advantage was to be obtained from exercise, the time for commencing it could not be delayed. I laid my views of the case fairly before the family, and suggested that the choice rested with them to carry these views immediately into effect, or if they should appear too hazardous, to have the assistance of further

medical advice in consultation. They were content to rely upon my judgment. The patient was recommended, notwithstanding the recent hemorrhage from her lungs, and the lateness of the season, to take exercise freely in the open air. She followed my advice, riding out in a carriage, and walking frequently, and not allowing even the cold weather to confine her to the house. The consequence was that her consumptive symptoms gradually disappeared, her strength increased, and she was ultimately restored to health: nor has she subsequently had any return of her complaint.

I have repeatedly witnessed cases of a similar character with the above, though perhaps not so striking: and it is now my uniform practice in all instances of hæmoptysis, where any tendency to consumption is displayed in the symptoms, or is apprehended from the constitution or hereditary predisposition of the patient, to recommend him very soon after the suppression of the hemorrhage to resume his outdoor avocations, and use exercise freely: nor, during many years that I have pursued this plan, have I had any reason to regret the adoption of it.

Except under the circumstances above mentioned, I am not in the habit of restricting the patient very closely in his diet. Nutritious and easily digested food is borne much better in this disease than we might imagine. The feelings of the patient himself are, in general, the best guide as to the quality and quantity of aliment which are suitable to his case. Should the use of animal food render him uncomfortable, increasing the irritation of his heart and arteries, exasperating his cough, and producing pain or uneasiness in his chest, he will readily concur with his physician in the propriety of abstaining from it; but when, instead of experiencing these effects, he finds himself refreshed and invigorated by a meal of such food, without any increase of local uneasiness, cough, or fever, his inclination should not be opposed, unless under very peculiar circumstances.—I have sometimes been much struck with the manner in which patients with consumption bear strong food. A medical gentleman who laboured under this complaint, and ultimately died of it, used to assure me, after he had abandoned all hope of recovery, that one of the greatest of his earthly enjoyments was to sit down and take a meal of that kind of plain, substantial food to which he had been accustomed when in health. He declared that he usually felt better after such a meal.

It is a well established fact, that a meagre diet, especially when combined with want of exercise, is calculated not only to bring the scrofulous predisposition into action, but even to generate the predisposition itself in a healthy and vigorous constitution. As genuine phthisis is an affection, if not identical with scrofula, at least closely analogous to it, similar results may be expected from the same cause: and it is certainly unphilosophical to attempt the cure of a disease by means which are calculated to favour its production. I never, therefore, recommend a low diet with the view of arresting or removing the tuberculous affection: it is only when hæmoptysis, or

symptoms of genuine inflammation supervene, that I resort to this, together with the other antiphlogistic measures for their removal.—When this end is attained, and the proper consumptive disease only remains, I again permit the patient to consult his own inclinations as to diet, or at least allow such food as I should esteem proper for a healthy man.

On the subject of medicines in this malady, Dr. P. holds the following language:

I do not expect much from medicines in consumption. Given with the view of subverting the disease, they are manifestly injurious, as, without operating specifically upon the morbid condition of the lungs, they often produce irritation and increase debility, and thus hasten the fatal issue. But as it is desirable to preserve all the functions in as healthy a condition as possible, any accidental derangement of them should be encountered by remedies which are adapted to the removal of similar derangements under other circumstances. Thus costiveness, diarrhœa, unhealthy biliary secretion, and disordered conditions of the stomach or other viscera, should be treated with appropriate medicines, with this reference only to the chief disease, that it is likely to be aggravated by the continuance of these morbid affections, and that, in the means employed for their removal, its influence in repressing the vital energies, and exhausting the system should not be overlooked. Occasion for the use of medicine is also afforded by the distressing symptoms which attend the progress of the malady, and which a regard for the comfort of the patient requires that we should try to palliate, as we are unable altogether to remove them. Opiates, and other anodynes, to relieve cough and allay irritation, with various pectoral medicines to assist or promote expectoration, are occasionally useful. Sometimes gentle tonics are advantageous in counteracting the debilitating and wearing influence of the disorder, especially in its more advanced stages. Of these I have found none to answer so well as the infusion of the wild cherry-tree bark. It promotes digestion, and gives tone to the system generally, without producing that irritation of stomach, and constriction of the breast, which are apt to result from the use of Peruvian bark in the same condition of things. The simple bitters, such as quassia, gentian, and columbo, may also be employed: and when a powerful tonic is required, the sulphate of quina will be found to answer a better purpose than the bark in substance. I occasionally prescribe Fowler's solution when the chills are very distressing; but always with caution, and never for a longer period than two or three days at a time. A small blister kept open for some time, and renewed on different parts of the chest successively, is sometimes advantageous by giving an external direction to the disease.

Decidedly as we concur with Dr. P. in these views, when true tubercular Ph thesis is in our contemplation, we must be permitted to express a doubt, whether they are correct in reference to the other varieties of consumption; such as chronic bronchitis, chronic pneumony and vomica. In these affections, there is no specific morbid action, and hence they are (in their curable stages) to be treated by ordinary antiphlogistic and sedative means.

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25. *Stethoscopic diagnosis of pregnancy.* The Boston Med. and Surg. Jour. March 23d inst. contains an interesting paper by Dr. Fisher, on auscultation in the diagnosis of pregnancy. He has had opportunities of testing the efficacy of this meth-ed in 16 cases.

In applying the stethoscope over the womb of these individuals, I have heard in each two peculiar sounds; the one quick and rapid, resembling in some respects the ticking of a watch,—the other slow and prolonged, resembling the sound of a bellows. The former corresponded in every respect to the one which Kergaradec supposed to proceed from the action of the fœtal heart, and termed by him "the pulsation of the heart of the fœtus." The latter answers exactly to that which this author has termed a "simple blowing pulsation," or "placental sound," and which he supposes to arise from the placenta during the circulaton of blood through it.

In every one of the sixteen individuals that I have examined, I have heard distinctly and could count the pulsations of the heart of the fœtus. In about two-thirds of the cases, these pulsations were loudest and most distinct on the left of the linea alba, and in the left side of the womb. In a minority of the patients, the pulsations were most distinct in the opposite side of the womb and median line of the abdomen; and, in two or three instances, they were most audible immediately under the linea alba, and at the distance of two or three inches below the umbilicus. In which side soever of the womb or of the median line the child was, by the sense of touch, found to be situated, in that the pulsations of the fœtal heart were, in every instance, most audibly and extensively heard. In most instances, I experienced no difficulty in detecting these pulsations; —when the woman was very fleshy, however, or when the uterus contained an unusual quantity of liquor amnii, I was obliged, in order to recognise them perfectly, to press the instrument with considerable force upon the abdomen, and to command perfect silence in the room. With these precautions, I have never failed in hearing the heart's action whenever I have examined for it, and in being able

to number its pulsations. The noise produced by the friction of the clothes, by the peristaltic motions of the bowels, or by some sudden muscular contraction of the patient, would indeed render them obscure for a moment, but it was only for a moment. The action of the fœtal heart resembles, in all respects save in frequency, that of the adult heart, and cannot be mistaken even by the unpractised ear. In the language of my notes written at the bedside, "the action of the fœtal heart is characterized by two sounds or pulsations; the pulsations are loud and clear, and those of the ventricles can be plainly distinguished from those of the auricles, almost as much so as in the adult heart. There is the gradual and deep sound of the contraction of the ventricle, which is immediately, and without interval, followed by the clear and valve-like sound of the contraction of the auricle;—a momentary rest of the organ now follows,—then occurs again the gradual and deep sound of the ventricle, followed by the clearer and sharper one of the auricle. There is no evident impulse communicated to the instrument by these pulsations, nor do I discover that the motions made by the mother in turning from side to side cause any variation in the pulsations of the fœtal heart. They continue to be regular and uniform during these movements, unless some convulsive motions of the fœtus happened at the same time, in which case they increase in rapidity."

The space over which these pulsations could be heard, their number, and the point of elevation in which they were strongest and most distinct, varied in different individuals and at different months of pregnancy. Generally speaking, they were audible over a space of seven or eight inches long, and five or six broad. In some, I have heard them from the groin to the naval, and even beyond it: and from the superior spinous process of the ilium of one side, to within two or three inches of that of the opposite side. In others, they were limited to an area of four or five inches. Their number varied from 118 to 155 in a minute, in different females and at different periods of gestation. In the earlier periods of pregnancy, they were more frequent than in the later periods. They are generally uniform and regular in their succession and number, but, when the child moves suddenly, or when any convulsive motions take place in its limbs, then the action of the heart becomes so rapid that it is difficult, and sometimes impossible, to count its pulsations. The spot where the pulsations were most audible, particularly during the last month of pregnancy, and under which the heart was most probably situated, was generally about three inches from the naval, on a line extending from it to the middle of the groin. This spot, however, varied in its situation in the different months, and when the patient turned from side to side.

Besides the stethoscopic phenomena now mentioned, I have heard, in most, but not in all of the cases stated, the "simple blowing pulsation" described by our French author, and which he denominates the "placental sound." The region in which, and the space over which, it could be heard, varies in different individuals and at

different periods of gestation. I generally heard it more audibly in the upper and anterior portion of the womb, and almost always in a part of the organ opposite to that in which the fœtal pulsations were heard. If these were observed on the left side of the linea alba, then the placental sound was usually to be discovered on the right side of this line, and vice versa. In one instance, the sound proceeded from the lower part of the womb, near the public region; and, in a female yet to be confined, the sound can be heard on each side of the fundus of the womb, but cannot be distinguished in the central and most projecting part of it. In this last case, the placenta is probably attached to the upper and back part of the uterus, having the child immediately in front of it. The place of the placental sound was, in some cases, limited to three or four inches in extent; in others, and particularly in those whose abdomen was much distended by the waters of the ovum, the space over which it was audible was many inches in diameter.

The character of this sound is peculiar. It assumes, during the course of pregnancy, as Lænnec has observed, all the characters of the bellows-sound. About the commencement of the fifth month, which is the earliest period that I have had an opportunity of hearing it, the sound was characterized by a sort of rushing or rasplike noise, not unlike that produced by the action of a small file upon a thin soft board. Later in pregnancy, and during the eighth and ninth months, at which period I have heard and examined it most frequently, it is duller, and resembles very closely the sound produced by the blowing of a pair of bellows. This comparison, however, does not convey to the mind a pefect idea of the sound: it has more of a swelling tone or character, if I may so term it, than that produced by a pair of bellows: it resembles the noise of a broad dense flame, which is produced by the wind from a large pair of bellows, more than it does the simple issuing of the air from the bellows itself; or perhaps it still more perfectly resembles the noise of water as it is forced from the hose of a fire engine. This sound is always isochronous with the pulse of the mother, and varies in number and character with it. It increases and dies away in unison with the dilatation and contraction of the artery at the wrist, and its intensity was always the greatest at the moment that the impulse of the artery was greatest.

The placental sounds were always heard in the same part of the womb in the same individual, and were uniformly distinguished by the same peculiarities until the commencement of labour. But during the labour pains a new phenomenon takes place in regard to them. At the moment the pains occurred and the womb began to contract, I observed that the placental sounds became less sonorous and gradually died away as the pains increased, and finally, when these were most acute and the contraction of the uterus was greatest, they for a moment completely disappeared. When the pains are light and the contraction of the womb but partial, the placental sounds become less diffused and audible, but do not cease entirely.—

They diminish in intensity in proportion as the degree of pain and uterine contraction increases. As the pains cease and the uterus relapses again into its previous quiescent and dilated state, the placental sounds assume their accustomed character, and during the intervals of pain they vary in no respect from what they were before labor commenced. These phenomena I have heard repeatedly, and during many successive contractions of the womb. I have heard them in six different cases, and I want no other proof to convince me that the "simple blowing pulsation," or "placental sound" now described, proceeds from the placenta. But there are further proofs of this. The moment the child is born and the cord ceases to pulsate, the placental sound is no longer heard; and, in two cases, I have immediately, on the birth of the child, and before the cord was divided, passed my hand into the womb, and ascertained that the placenta was attached to that part of the organ from which the sound proceeded.

It is said that the placental sounds can be heard as early as between the third and fourth month of gestation, and immediately after the uterus has risen above the pelvis. The earliest period at which I have had an opportunity of examining for them, was the last of the fourth, or the commencement of the fifth month. They were audible at this period. They were occasionally intermittent, and could not during every examination be detected, until the last few weeks of pregnancy. During the ninth month I never failed hearing them distinctly whenever I searched for them. The friction of the clothes against the instrument, the noise made in the room, and the rolling of the intestines, would now and then overpower the sounds of the placental pulsations—but only for a short time. The moment these accidental causes were removed, the sounds would become as distinct and audible as ever.

In making the "external" examinations now mentioned, the female was made to lay upon her back, and to be lightly covered with clothes. The position of the patient, however, was often changed. Sometimes I made my examinations whilst the female was laying on her side,—on her face,—and whilst standing erect,—without, however, observing any very material variation in the situation or character of the stethoscopic phenomena.

I have never been able to hear the fœtal or placental pulsations by applying the stethoscope over the loins or sacrum, or over the back part of the abdominal walls. To ascertain the state of the womb by manual pressure, I usually commenced my "searching operations" at the symphysis pubes, and, from this point, I cautiously carried my fingers over every part of the abdomen. In using the stethoscope, I usually applied it, in the first instance, over the navel, so that this organ should be included within the open end of the instrument. From the navel, I moved it in every direction over the abdominal cavity. Proceeding in this manner, it was easy to discover in what region of the womb the pulsations were located, and the exact point where they were strongest and most powerful. Gen

erally speaking, all these examinations may be made with as much facility as those of the chest can be, and with as little exposure of the patient, and without necessarily offending the delicacy even of the young and sensitive. Occasionally, however, in order to convince myself that I was not mistaken in the character of the sounds which I heard, I have been obliged to expose a part of the abdomen sufficiently extensive for the application of the instrument. But, in most cases, this was unnecessary. The phenomena were easily distinguishable through a simple covering of clothes, as a sheet, for instance. The covering, however, should be of linen or cotton, and, to prevent any noise which might arise from friction, I have found it useful to moisten the part of the covering over which the instrument was to be applied, or to dip the end of the instrument in water previous to its application. Either of these precautions will generally render any exposure of the abdominal surface entirely unnecessary.

The following inferences may justly be drawn, I think, from the preceding observations:—

1st. By means of the stethoscope it can generally, and perhaps always, be easily ascertained if the woman be pregnant with a living child; and whether she be pregnant with one or more living fœtuses.

2nd. By means of the same instrument the situation of the placenta can be determined, whether in the fundus, side, or over the mouth of the womb;—and—

3d. The situation of the child in the uterus may be distinguished, and the character of the presentation at birth may, at least in some cases, be foretold by means of external manual examinations.

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26. Medical Jurisprudence. *Mania a potu. Birdsell's case.* We should not again venture to refer to this monomaniac, had not the history of his trial attracted the attention of several of our brother Editors to a degree that evinces, that they have read it with interest. Our readers will recollect that in our July number, (1829) we ventured to express the opinion that *mania a potu*, like every other variety of mental alienation, should be received in our Courts of Justice, as an excuse for crime. We are happy to be able to say, that the learned Editors of the North American Medical and Surgical Journal, and of the Boston Medical and Surgical Journal, in quoting largely from our paper, have expressed their unqualified approbation of its sentiments. The latter have even entered into an extended and ingenious argument in support of the proposition.

The same history has attracted the attention of our associate profession, and we find in the 5th No. of the American Jurist and Law Magazine, published in Boston, an extended notice of this case, introduced by the following remarks:

An account of a trial before the Supreme Court of the state of Ohio, has just come into our hands, which, though different in some of its features, bears a strong resemblance to the case of Drew. In this case the point of law did not come directly before the court for a final decision. Whether the accused was at the time he committed the homicide, capable of discriminating between right and wrong, was a question, from all the circumstancea of the case to be left to the jury, and they having returned a verdict of *guilty*, the court upon a motion for a new trial did not think proper to interfere and disturb the verdict. The opinion of the court, however, so far as it can be gathered from incidental remarks made at the argument of counsel for a new trial, would seem to be at variance with the decision of the Circuit Court in the case of Drew. They say 'that they were not called upon to give an opinion, whether *Mania a potu* would, under any circumstances, be an excuse for the commission of a crime, but they feel no unwillingness to express their opinion, that if the insanity was the offspring of intemperance and the prisoner *knew* that intoxication would produce it, he could not plead it as an apology.' This intimation from the court, and the result of the trial, seem to have produced considerable excitement in that quarter of the country, and have drawn to the subject the attention of Dr. Drake, a distinguished medical professor, who, in the 'Western Journal of the Medical and Physical Sciences,' has stated the case and accompanied it with an elaborate discussion of the question 'whether *Mania a potu*, either temporary or protracted, be an excuse for crime.' He comes to the conclusion, the *correctness of which we cannot doubt*, 'that insanity of this kind ought in law to be an immunity from punishment.'

The case referred to in this extract is given in the Jurist, and being of the very highest authority, as occurring in one of the Circuit Courts of the United States, and under the adjudication of Mr. Justice Story, we shall transfer it entire to our columns. We doubt not it will be read with deep interest.

At the May Term, A. D. 1828, of the Circuit Court of the United States, Alexander Drew, commander of the whaling ship John Jay, was indicted and tried for the murder of his second mate, Charles F. Clark, while upon the high seas. It appeared in evidence that previously to the voyage, during which the fatal act took place, Drew had sustained a fair character, and was much respected in the

town of Nantucket, where he belonged. It was proved that he was a man of humane and benevolent disposition, but that for several months he had been addicted to the use of ardent spirits, and for weeks during the voyage had drunk to excess; that he made a resolution to reform, and suddenly abstaining from drinking, he was seized with the delirium tremens, and that while under the influence of the disease he made an attack upon Clark, and gave him the stab of which he afterwards died.

The first witness who testified in the case was George Galloway, the cooper on board the ship. He stated that he joined the ship in the Pacific Ocean; that he found Capt. Drew to be an amiable man, kind to his crew and attentive to his business, but that he often indulged to excess in spirituous liquors. During the latter part of August, 1827, he had been in the habit of drinking very freely; that they spoke a ship from which Capt. Drew obtained a keg of liquor, and after he returned to his own vessel he drank until he became stupified; that soon after he recovered a little from his intoxication, and ordered the keg with its contents to be thrown overboard, and it was accordingly done. There being now no more liquor on board of the ship, and none to be procured, Capt. Drew, in two or three days, discovered signs of derangement. He could not sleep, had no appetite, thought the crew had conspired to kill him, expressed great fears of an Indian who belonged to the ship, called him by name when he was not present, begged he would not kill him, saying to himself he would not drink any more rum. Sometimes he would sing obscene songs and sometimes hymns, would be found alternately praying and swearing. In the night of the 31st of August, Drew came on deck and attempted to jump overboard, and when the witness caught hold of him he sunk down trembling, and appeared to be very weak. His appearance the next morning the witness described to be that of a foolish person. At seven o'clock in the morning of the first of September, the witness, Capt. Drew, Clark, and others, were at breakfast in the cabin, when Drew suddenly left the table and appeared to conceal something under his jacket which was on the transom in another part of the cabin. He immediately turned round to Mr. Clark and requested him to go upon deck; the reply of Clark was, 'When I have done my breakfast, sir.' Drew said 'Go upon deck, or I will help you,' and immediately took from the transom a knife which had been covered over by his jacket, and before another word was spoken by either, he stabbed Clark in the right side of his breast. Clark was rising from his chair at the time the knife struck him, and immediately fell upon the floor. He afterwards rose up and went upon deck alone. As the witness left the cabin, Drew cocked his pistol, pointed it at him, and snapped it, but it missed fire. Capt. Drew followed them upon deck, and addressing the chief mate, said 'Mr. Coffin, in twenty-four hours from this, the ship shall go ashore.' He was then seized, bound hand and foot, and a guard was stationed over him. His whole demeanor, for some time after, was that of an insane person. He would frequently call

upon persons who were not on board, and who never had connexion with the ship. Some weeks after, when Drew first appeared to be in his right mind, he was informed of the death of Clark and its cause, he replied that he knew nothing about it, that when he awoke he found himself handsuffed, and that it all appeared to him like a dream. There had not been for months any quarrel or high words between Clark and Capt. Drew.

The second witness was Moses Coffin, the first mate of the ship. Coffin stated that Capt. Drew had been in the habit of drinking, and that it was by the order of Drew that the keg of spirits was thrown overboard. He recounted numerous instances in addition to those before stated, of frovolous complaints made by Drew, of his countermanding his orders, of his fear of being left alone, and his conversation with imaginary beings by whom he supposed himself surrounded, all going to prove physical weakness and alienation of mind. Though familiar with his habits, the witness had not, before this affair, supposed him insane. With regard to Clark, the witness dressed his wound and took care of him. Two physicians at a Spanish port, which they reached soon after, gave it as their opinion that it was not dangerous, and that it would be well in a few days; but Clark himself had said, in describing his complaint to witness, that the wound caused an internal flow of blood. It healed externally before Clark expired.

At this stage of the proceeding, the Court asked the District Attorney if he expected to change the posture of the case. He admitted that unless upon the facts stated, the court were of opinion that this insanity, brought on by the antecedent drunkenness, constituted no defence for the act, he could not expect success in the prosecution. After some consultations, the opinion of the court was delivered as follows:

Story, J. We are of opinion that the indictment upon these admitted facts cannot be maintained. The prisoner was unquestionably insane at the time of committing the offence. And the question made at the bar is, whether insanity whose remote cause is habitual drunkenness, is or is not an excuse in a court of law for a homicide committed by the party, while so insane, but not at the time intoxicated or under the influence of liquor. We are clearly of opinion that insanity is a competent excuse in such a case. In general, insanity is an excuse for the commission of any crime, because the party has not the possession of his reason, which includes responsibility. An exception is when the crime is committed by a party while in a fit of intoxication, the law not permitting a man to avail himself of the excuse of his own gross sin and misconduct to shelter himself from the legal consequences of such crime. But the crime must take place and be the immediate result of the fit of intoxication, and while it lasts, and not as in this case a remote consequence, superinduced by the antecedent exhauston of the party, arising from gross and habitual drunkenness. However criminal, in

a moral point of view, such an indulgence is, and however justly a party may be responsible for his acts arising from it to Almighty God, human tribunals are generally restricted from punishing them, since they are not the acts of a reasonable being. Had the crime been committed while Drew was in a fit of intoxication he would have been liable to be convicted of murder. As he was not then intoxicated, but merely insane from an abstinance from liquor, he cannot be pronounced guilty of the offence. The law looks to the immediate and not to the remote cause, to the actual state of the party, and not to the cause which remotely produced it. Many species of insanity arise remotely from what, in a moral view, is a criminal neglect or fault of the party, as from religious melancholy, undue exposure, extravagant pride, ambition, &c. &c., yet such insanity has always been deemed a sufficient excuse for any crime done under its influence.

The jury without retiring from their seats, returned a verdict of *not guilty*. The case was conducted for the government by *George Black*, Esq. District Attorney; for the prisoner, by *Daniel Davis* and *Francis Bassett*, Esquires.

The exalted reputation of Judge Story, must give great authority to this opinion in our criminal courts generally.

We have also had the gratification to receive a letter from Professor Beck, the learned author of the System of Medical Jurisprudence, expressing his perfect accordance with our views of Birdsell's case, and of the moral character of *Mania a potu*. The following are his words:

I have read your papers on the case of Birdsell, with perfect conviction as to the correctness of your opinion on the subject of *Delirium Tremens*. And as far as I know, you are entitled to the further praise of originality in suggesting it. I confess myself also liable to the objection you have made, concerning the case of Mc. Donough, but at the time of writing, I had my mind so filled with the legal doctrine, as to the non-excusableness of actions committed while in a state of intoxication, that I too much overlooked his chronic disease and its effects.

It appears from the message of Governor Trimble to the General Assembly of Ohio, in December last, that Birdsell still remained in a state of mental alienation; a fact of which we have been assured by observations made by others as late as February. It is creditable to our chief magistrate, that he should have had the sagacity and firmness, to exercise, in favour of this convict, the prerogative of commutation of punishment; and thus preserve our judiciary from the odium of having illegally inflicted the punishment of death.

27. *Hospital Surgeons of Paris.* We are indebted to the Boston journal for a sketch of some of the principal hospital surgeons of Paris; an extract of which, we fancy, will not be without its interest, to those who are accustomed to contemplate these distinguished men only through their writings. The writer is a Yankee student of medinine, at present pursuing his studies in the French metropolis:

At the Hotel Dieu, Dupuytren begins his visit at daylight, after which he gives a lecture, and has operations. He is an admirable lecturer, and has the art of making the most trifling subject interesting. He is a man about 55, I should think, or upwards, strong muscular figure, with a fine intelligent countenance, and with grey hair. At the hospital, he always wears a white apron of coarse cloth. The principal operation I have seen him perform, was for the stone, upon a child about three years old. He introduced a full-sized sound, with a large groove, and having a large probe extremity, into the bladder, and then, with a sharp-pointed bistoury, he made a transverse semilunar incision about three lines above the margin of the anus. He then introduced the concealed gorget, and afterwards a pair of forceps, with which he immediately withdrew a stone of large size. The whole operation was performed in an inconceivably short space of time; the child appeared to suffer very little during or after the operation, and was perfectly well in a few days. It was the third operation he had undergone.—Rather a singular operation Dupuytren performed the other day, was trepanning the os humeri below the insertion of the deltoid muscle, for disease of the bone. Dupuytren, in his visits, uses the most endearing epithets, as *ma belle fille*, *mon bon garcon*, etc., but he is excessively irritable, and if they do not answer quick enough, or give unsatisfactory answers, he abuses them at a great rate.

At La Pitie is Lisfranc, the rival perhaps of Dupuytren, or second only to him in operative surgery. He is a much younger man than the former, tall, handsome, and of a more commanding figure, with an expression slightly sarcastic. In addition to the apron, he visits and lectures in a black night-cap. He is much admired as a lecturer;—his hours are the same with those of Dupuytren, with whom he is at sword-points, and whom he does not spare in his lectures. As I have attended the lectures of the former, I have heard him only once or twice;—I saw him cut off a leg, which he did with wonderful dexterity and expedition. The rapidity with which they all operate, is the most remarkable feature I have observed in the French Surgery. It is perhaps owing to the facility of constantly pursuing dissections here, to their devoting their lives to one branch of the profession, and to the number of operations they are called to perform: whether, after all, it is consistent with the safety of their patients, is a thing which I greatly doubt.

At the Hospital Neckar, Civiale has generally two or three patients upon whom he operates, every Saturday, for extraction of the stone through the urethra. He is a young man, I should think about thirty-five, has a very pleasant intelligent countenance, and appears to be a perfect gentleman. He seems to be the particular favorite of the Americans, and is followed almost exclusively by an American class.

From the Hospital Neckar, we usually go to La Charite, where Boyer and Roux operate. Boyer looks like anything but a great man. He is a fat square figure, and in his old coat and bloody apron, might be taken for a hogkiller. He operates most generally for fistulæ in ano. He appears to possess a great deal of humor, is very fond of gossiping with the students, generally sits a long time talking with them after the visit, and will keep the class laughing for an hour, in a lecture on the fistulæ.—Roux is about thirty: he is said to perform many operations with great dexterity; I have seen him only once. He then performed the operation for brachial aneurism. He put a roller of linen between the artery and the ligature, in the manner recommended by Boyer. Boyer, by the way, has lately performed an important operation,—the extermination of a large portion of the rectum,—an account of which you have probably seen by this time.

At the School of Medicine, Orfila is the most popular lecturer. The doors are opened half an hour previous to the commencement of the lecture, and, half an hour before this they are surrounded by hundreds of students in defiance of the cold At last the doors are opened, and the crowd rush forward with all their might, overthrowing and trampling down some, and squeezing the breath almost out of the body of others. I attended his lectures at first, when the throng was not so great, and wished much to continue, but I found it impossible to get a place near enuogh to hear him. He is a very animated lecturer, and speaks with great rapidity. His lectures on the application of Chemistry to Medicine and the Arts, are among the most useful here.

III. Original.

28. *Notes of a case of nervous irritation during pregnancy, with separation of the symphysis pubis.* On the 22d of June 1829, I was sent for, to see Mrs. A—— who was in the 6th month of gestation. In consequence of a slight cold, she had submitted to a sweating process, consisting of copious draughts of stimulating aromatic teas, and of warm applications to the lower extremities; the effects of which were, violent arterial action, threatening congestion in the vessels of the lungs, heart and head, evinced by very hurried respiration, a sense of fulness in the brain, dimness, and syncope.

The pulse was very irregular, and as to frequency, when I first saw her, it was not to be distinctly numbered, but certainly its pulsations exceeded 150 in the miuute. There was no perceptible motion of the fœtus.

I immediately opened a vein in the arm, and detracted blood freely, not desisting until the pulse became evidently much less frequent, and the respiration, which had been very painful, as well as extremely hurried, became more regular and free from pain. Having waited, by her bed side about an hour, and perceived a threatening return of all the symptoms, I bound up the arm, and drew from the orifice, a sufficiency to obviate the danger. I think the quantity taken, by the two venesections, amounted to 24 ounces. In about a quarter of an hour, I left her, promising to return in the course of the day; but before leaving her, I directed about 30 drops of camphorated spirit to be be given, whenever oppressed breathing or faintness came on.

In about 3 hours afterwards, I visited her again, and found her pretty comfortable. She informed me, that a short time before I came in, she perceived the first returning motion of her child, which appeared convulsive, and simultaneous with a very strange sensation about her heart, like three or four strong electric shocks, determining themselves from the heart to the head; after which the motions of the fœtus were as formerly, and, excepting a considerable exhaustion of strength, she had no alarming symptoms.

She however complained, on leaving her bed, of a pain at the symphysis pubis, and considerable difficulty in walking, or standiug. For this I had a bandage applied over the hips, and directed it to be worn constantly.

At the full term of gestation, she brought forth a fine healthy son; but not without completing the separation of the agglutinated bones of the pubis. These however, by long confinement in a horizontal position, and wearing the bandage, 2 months reunited; and she now enjoys good health, and nurses, from full fountains, a thriving urchin.

If time were allowed me, I should add some remarks on this case; but they will naturally present themselves to the

reflecting practitioner. My notes of the case, having been mislaid, I have drawn up this hasty paper, from memory.

Such as it is, I respectfully submit it, and am, Sir, with sentiments of high esteem,

Yours,

EDWIN A. ATLEE, M. D.

DR. DRAKE.

Cincinnati, March, 1830.

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29. *Obituary of Professor Brown.* Died at the residence of his brother-in-law, Col. Percy, near Huntsville, Alabama, on the 12th of January last, (1830,) Doctor SAMUEL BROWN, formerly professor of the Theory and Practice of Medicine in Transylvania University. His disease, as we are informed by our friend Dr. Picket, one of his medical attendants, was Apoplexy; to which, from his sanguineo-lymphatic temperament, he had a predisposition. He was upwards of 60 years old.

Dr. Brown was the son of a Presbyterian clergyman, and born in Virginia; where he studied the elements of his profession, but completed his education in the University of Edinburgh, in the latter part of the last century. He commenced the practice of the profession on the banks of the Potomac; but about the year 1796 emigrated to Lexington, Ky.; where he resided for many years, and established a high reputation. From Lexington he emigrated to New-Orleans, where he prosecuted his profession for a time, when he married Miss Percy, of Mississippi, and went to reside in that state. This lady dying, soon afterwards, left him with two children; when he returned to Kentucky, and at length removed to Alabama. From that state, about the year 1817, he visited Philadelphia, where he continued to reside, a great part of his time, till the autumn of 1828, when he returned to Alabama, and remained there up to the time of his death.

In the month of January, 1819, Dr. Brown was appointed, by the legislature of Ohio, in the act incorporating the Medical College of Ohio, one of its professors, but did not accept. In the succeeding spring, he was offered the chair of the The-

ory and Practice of Medicine, in Transylvania University, and in the following autumn entered on its duties. This station he held till the end of 1825, when he resigned, having delivered six courses of lectures. The summers of 1824 and 1828 he spent in London and Paris.

While he continued in the practice of his profession, Dr. Brown was greatly esteemed by his patients, for his skill and suavity. He was a gentleman of extensive information, both in and out of the professsion; and possessed great natural capacities for acquiring scientific knowledge. His mind was brilliant and penetrating, but not remarkable for patient and protracted analysis. As a lecturer he was brief and desultory, but abounded in valuable facts, ingenious suggestions, vivid conceptions, and most apposite anecdotes. Hence his pupils were always pleased as well as instucted, and allowed themselves to be reconciled to his deficiencies of method, by the value of his insulated facts and speculations.

Professor Brown was the founder of the association, denominated the *Kappa Lambda Society of Hippocrates*; the number of whose members, especially, in the western and southern portions of the United States, is considerable. Its object is to unite the best members of the profession, on every feasible and honorable plan for elevating and sustaining its dignity. It does not assume to itself more learning; but learning, means and objects, of a kind more consonant with professional excellence and honor; and hence its motto—

'*Non doctior, sed meliore imbutus doctrina*'

which has since been adopted into the title page of a Journal, established under a resolution and conducted on the principles of the society, by an able and honorable committee of its members.

Like many other experienced and learned physicians, Dr. Brown wrote but little. His longest production of any kind, is a paper on the salt petre caves of Kentucky, published in one of the early volumes of the Transactions of the American Philosophical Society. On subjects strictly professional, he contributed two or three short papers, to the Medical Repository, edited by Dr. Mitchill, which afforded good evidence of

practical tact, and are calculated to exeite a regret, that he should not have left behind him a more copious record of his ample experience.

In manners and social qualities, the deceased was polished and facinating. His personal acquaintance with the students of the University at Lexington, was extensive and made him pre-eminently, a favourite with all the classes. Widely dispersed as they now are, he will long be recollected with thusiasm, throughout the states of the West and South, while society will enjoy the benefits of the sound practical knowledge which he imparted, and the glowing philanthropy which he inspired.

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30. *Jefferson Medical College.*—It will be seen by the following circular, that the Editor of this Journal has accepted the Professorship of the Theory and Practice of Medicine in the Medical Department of Jefferson College, Philadelphia.

The subscribers to the Journal, are, of course interested in knowing, and may wish to inquire, how far this acceptance will exert an influence on the work, which they patronize? The Editor would reply, that its publication will be *continued regularly in Cincinnati*, and that his occasional residence in Philadelphia, with the promised assistance of his colleagues, some of whom are advantageously known throughout the United States, as medical writers, must necessarily contribute to enrich it pages.

Jefferson Medical College.—The *Jefferson Medical College* was instituted in Philadelphia, in 1825, and, during its first session, was endowed by an act of the Legislature of Pennsylvania, with power to confer degrees in Medicine, and with all the privileges and prerogatives of similar Institutions, in our own country and in Europe.

Since its foundation nearly 600 Students have attended the respective courses of Lectures, and of this number, 145 from various sections of the United States, the Canadas, West Indies, and Europe, have been admitted to the Degree of Doctor of Medicine.

The Sixth Session of the College will commence on the first Monday of November next, and, it is believed, under the most favorable auspices; every obstacle to its future advancement having been removed, and such measures adopted by the Board of Trustees, as will give a new impulse to the exertions of the faculty. Among these

measures, it is thought proper to specify particularly, the appointment of Professor Drake, of Cincinnati, to the chair of the Practice of Medicine. His reputation as a lecturer is acknowledged, while his practical acquaintance with the diseases most prevalent in the Southern and Western sections of our country, in which a majority of the graduates in medicine may be expected to locate themselves, must greatly enhance the value of his instruction.

The additions which have been made to the Anatomical Cabinet, with the facilities afforded for dissection and demonstration, are such as will bear comparison with those of the oldest Medical Schools on this side of the Atlantic.

In all other respects, it is confidently believed, it is not surpassed by any of its sister institutions, with *all* of which, as far as is known, it is placed on a footing of perfect equality,—a course of Lectures in one, being held equivalent to a course on the same branches, in every other.

The Alms House and Hospital of the city afford ample opportunities to the student of acquiring clinical instruction, and hours are appropriated to this purpose. An Infirmary for diseases of the eye is also connected with the College, under the direction of the Professor of Surgery, who will operate in the presence of the class, where this is practicable.

The following is the organization of the Medical Faculty,—viz:

Anatomy—By SAMUEL MCCLELLEN, M. D.

Materia Medica and Obstetrics—By JOHN EBERLE, M. D.

Chemistry—By JACOB GREEN, M. D.

Theory and Practice of Medicine—By DANIEL DRAKE, M. D.

Surgery—By GEORGE MCLELLAN, M. D.

Institutes of Medicine, Medical Jurisprudence, and the diseases of women and children—By B. RUSH RHEES, M. D.

The fee for attendance on each course is 15 dollars, or 90 dollars for all the courses. The graduation fee is 15 dollars, and no other charge is made either on matriculation, or subsequently.

The whole expense is therefore less than 200 dollars for the two full courses, required by law to entitle the student to graduation.—One of these, at least must be attended in this institution; and it is further required, that the candidate shall have studied three years (inclusive of the terms of attendance on the lectures) under the direction of a respectable practitioner of medicine,—that he shall be twenty-one years of age—and having presented a thesis on some medical subject, shall give satisfactory evidence of his qualifications on an examination by the Faculty, which takes place immediately after the close of each session.

The annual commencement of conferring the degrees, will not be delayed beyond the time requisite to complete the examination, that no unnecessary expense may be incurred by the student for

board. This may be procured in Philadelphia, at the rate of from two dollars and fifty cents to four dollars, in very respectable houses, to which the Janitor will furnish references, without charge.

Ten students are by law admitted gratuitously, each session, (the sum of 20 dollars only being paid by each to meet the current expenses of the institution.) Application for the benefit of this provision, and all other communications to the Faculty, must be addressed to Samuel McClellen, M. D. Dean of the Faculty, at the Jefferson Medical College, 10th, near Walnut street, Philadelphia. By order of the Faculty. SAMUEL McCLELLEN, *Dean.*

Philadelphia, March, 1830.

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31. At the late public commencement in the Medical Department of Jefferson College, the degree of Doctor of Medicine was conferred on thirty-five young gentlemen, alumni of the institution.

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32. *To subscribers, and the profession generally.*—The Editor of this Journal has disposed of the work to Dr. James C. Finley, who will hereafter be an associate Editor, and has engaged as publishers Messrs. Robbins and Deming of this city. Dr. Finley is a gentleman of talents and education, and intends to devote himself to the Journal with great industry and perseverance. His functions will commence with the first number of the fourth volume, now about to be committed to the press. From this arrangement, the work cannot fail to experience a decided improvemment, and become much more worthy of public patronage than it has heretofore been. Its plan will remain unchanged; but more editorial labour will be devoted to its pages, especially in the department of reviews, and its publication will be effected with a degree of punctuality, which the Editor with his numerous engagements has hitherto found impracticable.

The prospectus on the back of this number, will communicate to subscribers and the profession at large, the necessary information concerning this arrangement.

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